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**Trends in the Military
Balance and Arms Sales in
the Southern Gulf States
After the Gulf War: 1990-
1993**

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**CSIS Middle East Dynamic Net
Assessment**

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Introduction ¹

There are six southern Gulf states: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. Although these states differ in many ways, they all face a similar set of challenges in shaping their strategic position and military forces. They must try to develop enough deterrent and war fighting capability to check the threat from Iraq and Iran. They must resist hostile ideological and political challenges to conservative regimes. They must provide internal security, and defend against other southern Gulf states in petty quarrels over border areas and islands.

At the same time, they must be prepared to deal with threats from outside the Gulf. A united Yemen poses the same low level threat to Saudi Arabia and Oman that the YAR and PDRY did before their unification. The Arab-Israeli conflict provides some risk of being dragged into a new war in the Levant, and the rise of Islamic fundamentalism in Iran and the Horn of Africa has replaced Arab socialism as an outside force for political instability.

While superpower rivalry has largely ceased to influence the Gulf, the end of the Cold War scarcely means freedom from intervention by East and West. Eastern Europe and the former Soviet republics are a source of cheap arms imports and uncertain alignments, and rise of the Islamic republics in the CIS creates the risk of new shifts in the balance of power in the northern Gulf. The West continues to be concerned with the security of its oil imports, with trade, and with its own arms sales. The southern Gulf states are both dependent on U.S. and other Western power projection capabilities for security against Iran and Iraq, and threatened by some aspects of that dependence.

Military Forces, Strategic Needs, and Vulnerabilities

The key statistical details of the military forces of the southern Gulf states are summarized in **Table VII-1**, along with those for the states that are the most probable threats. It is clear from these statistics that the southern Gulf states have enough collective resources to provide a major regional deterrent and considerable self-defense capability.

¹ It is important that the reader understand that there is no consistency in the statistical data provided on the Middle East. The author has used a wide range of sources throughout this book, and has often had to make his own estimates. The data on the GCC countries are, however, particularly uncertain, and the author has often had to change sources to get consistent or comparable data on a given point. This leads to the use of contradictory data for the same measurement, often because of differences in definition or time of estimate, but sometimes simply because accurate data are not available. The reader should be aware that such statistical information is better than no information, but must be regarded as approximate and should be checked with at least three to four different sources before being used for specialized analytic purposes.

Unfortunately, resources are only important to the point they have been transformed into military capability, and each of the forces listed in Table VII-1 has major limitations.

The southern Gulf states all have relatively small manpower pools to draw on for the space they must defend. They suffer from major diseconomies of scale. In many cases, the southern Gulf states have bought weapons for their prestige, rather than their deterrent or combat capabilities. Most of the military forces in the smaller southern Gulf states have inadequate warning sensors, and weak command and control systems. Most armies lack modern communications, battle management, and target acquisition systems. There is little heliborne or amphibious capability to rapidly move troops. There are limited airborne early warning (AEW) and air control and warning assets. Most southern Gulf ships have inadequate air and missile defenses. The smaller navies have no mine warfare capability, and all forces have poor ability to conduct combined arms and combined operations. There are few modern reconnaissance and intelligence assets. The various states and military services differ sharply in sheltering and passive defense capability.

These problems are compounded by the fact that the forces of the individual southern Gulf states have little standardization and poor interoperability. While they are gradually improving in individual military capability, many are still "showpiece" forces which cannot operate effectively except in carefully planned exercises. They have few native combat troops, and have whole foreign manned combat units with little loyalty to the nation or regime.

Some of the southern Gulf states listed in Table VII-1 may spend a great deal on defense, but all face special problems in building up an adequate deterrent or defense capability. Saudi Arabia is the largest southern Gulf state in terms of both geography and military forces and is the key to any successful effort at regional cooperation in defense. Saudi Arabia has a low ratio of forces to the space which must be covered by its critical defensive areas. It cannot create an effective defense without its neighbors.

The smaller southern Gulf states spread along the coast of the southern Gulf. If any of these states fell into hostile hands, it would be a major strategic springboard for intervention by Iran or Iraq, or a constant threat to the internal security of its neighbors. A hostile air force or navy based in the southern Gulf could also make it far more difficult for other Arab states or the U.S. to project power into the region.

Kuwait shares a common border with Iraq is only a short distance from Iran. No foreseeable mix of Kuwaiti, other southern Gulf, other Arab, and/or U.S forces can offer Kuwait full security against another round of Iraqi surprise attacks or surprise Iranian air,

amphibious, and missile attacks. Kuwait 's small territory and population keep it military vulnerable while it has massive oil and gas resources to protect.

Bahrain, Qatar, UAE, and Oman do not share a common border with Iran or Iraq, but they all lack strategic depth and adequate air and coastal defense capabilities and are vulnerable to Iraqi and Iranian attacks. Bahrain is small, relatively poor and ethnically divided. Qatar is small, and has too small a native population to develop effective armed forces. The UAE is shares the demographic and geographic problems of its smaller littoral neighbors, and is further weakened by tensions between its individual Sheikdoms. Oman must defend the Straits of Hormuz against any challenge by Iran and a long border with Yemen.

Table VII-1
The Size and Military Capabilities of the Southern Gulf States in 1993

| <u>Country</u> | <u>Size</u> (Sq. Km.) | <u>Population</u> (1,000,000s) | <u>GDP</u> (\$B) | <u>Defense</u> (\$B) | <u>Active</u> <u>Military</u> <u>Manpower</u> | <u>Tanks</u> | <u>Combat</u> <u>Aircraft</u> | <u>Major</u> <u>Combat</u> <u>Ships</u> |
|-----------------|--------------------------|-----------------------------------|---------------------|-------------------------|---|--------------|----------------------------------|---|
| Bahrain | 620 | 551 | 4.0 | .3 | 8,600 | 81 | 24 | 10 |
| Kuwait | 17,820 | 1,379 | 8.8 | 9.1 | 15,400 | 103 | 73 | 2 |
| Oman | 212,460 | 1,588 | 10.6 | 1.7 | 32,500 | 76 | 52 | 14 |
| Qatar | 11,000 | 484 | 7.4 | 0.6 | 10,800 | 24 | 18 | 10 |
| Saudi Arabia | 2,149,690 | 17,050 | 104.0 | 14.5 | 154,000 | 730 | 293 | 37 |
| UAE | 83,600 | 2,389 | 28.0 | 4.0 | 67,900 | 131 | 105 | 21 |
| Sub-Total | 2,475,190 | 23,441 | 162.8 | 30.2 | 289,200 | 1,145 | 565 | 94 |
| Iran | 1,648,000 | 61,183 | 90.0 | 13.0 | 440,000 | 800 | 262 | 27 |
| Iraq | 434,920 | 18,446 | 35.0 | 6.0 | 405,000 | 2,900 | 380 | 15 |
| Sub-Total | 2,082,920 | 79,629 | 125.0 | 19.0 | 845,000 | 3,700 | 642 | 42 |
| Total Gulf | 4,558,110 | 103,070 | 387.8 | 49.3 | 1,134,200 | 4,845 | 1,207 | 236 |
| Yemen | 527,970 | 10,395 | 5.3 | 1.1 | 72,000 | 1,320 | 101 | 31 |

Author's estimate adapted from: The IISS, Military Balance, 1992-1993; JCSS, Middle East Military Balance, 1990-1991; CIA, The World Factbook, 1992, Washington, GPO, 1993. Population figures are actual from July 1992. Other estimates are for mid-1992. The data shown are taken from single sources for comparability purposes, and often differ from the author's estimates made for individual countries in the following text.

The Gulf Cooperation Council and Efforts at Collective Security

If military considerations were the only major factor driving national decision-making, these problems would make the southern Gulf states band together to create an effective structure for collective defense. While Saudi Arabia is the largest southern Gulf state, it is no more capable of defending itself without help from its neighbors and outside powers than Bahrain or Qatar. The military balance in the Gulf region is clearly a function of how well the southern Gulf states work together to develop the following capabilities:

- o Forces strong enough to provide direct defense against low to medium intensity threats, and deter higher level threats by raising the threshold of risk to any attacker and/or inflicting retaliatory damage.
- o Strong air and naval defenses along the Gulf Coast and opposite Yemen.
- o Sufficient close air support and interdiction capability to compensate for weak land forces.
- o Sufficient naval and naval air capability to protect the coast and exposed oil and desalinization facilities against even the first wave of air and naval attack, while helping to defend shipping of all kinds.
- o Enough land forces to allow an emphasis on air and naval forces to be effective.
- o Air and missile strike capabilities adequate to inflict enough damage on enemy cities, oil facilities, and shipping to deter long range air and missile strikes through the threat of retaliation.
- o A suitable mix of active and passive defenses and strike capabilities to a level adequate to deter missile attacks.
- o Tactical mobility and lift for all forces which is capable of rapid cross-reinforcement of each country by some mix of other states.
- o Sufficient sustaining capability to allow prolonged engagement with well supplied threat forces without becoming politically dependent on outside nations.
- o Advanced and centralized sensor and C³I systems to maximize the capability of high technology weapons systems and to serve as a partial substitute for insufficient unit strength, problems in force quality at the unit level, lack of command experience, and lack of experience in combined arms and combined operations.

- o High technology advanced weapons systems to help compensate for inadequate unit strength and to maximize the effectiveness and value per dollar of key force elements.
- o Large and survivable basing, support, and infrastructure facilities to enhance survivability, tactical mobility, and cross reinforcement capability, and to use passive defense as a substitute for mass and active defense.
- o Advanced training and support facilities, and sufficient foreign technicians and civilians, to make maximum use of native military manpower and reduce technology transfer problems.
- o Credible over-the-horizon reinforcement capability as a means of meeting high level or high lethality threats such as an all out attack by a Northern Gulf state, support of a Northern Gulf state in resisting Soviet pressure or invasion, failure of a key force element, defense against new high technology threats, and defense against attacks on multiple fronts.
- o Over-the-horizon reinforcement capability from the West or other Arab states to deal with major threats from Iran or Iraq.

The southern Gulf states made a beginning towards developing such capabilities when they set up the Gulf Cooperation Council (GCC) in February, 1981. The creation of the GCC came largely as a result of the Iran-Iraq War, and a long standing fear of both Iran and Iraq. It marked an important step towards effective military cooperation. All six southern Gulf states became members -- Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE -- and all pledged to move towards cooperation in both military affairs and internal security.

The GCC has since made progress in the form of common staff talks and limited numbers of common military exercises. It set up a token rapid deployment force in Hafr al-Batin, and made efforts to develop common procurement policies.² It improved cooperation in intelligence and internal security after the uprising at the Grand Mosque in Saudi Arabia in 1979, and the coup attempt in Bahrain in 1981. Some aspects of this cooperation continued to improve during the Iran-Iraq War, as the southern Gulf states reacted to pro-Iranian bombings and assassination attempts in Kuwait and Saudi Arabia, and during the Gulf War, as they reacted to the threat of Iraqi attacks and terrorism.

² While this force is sometimes referred to as having 12,000 men, reliable Gulf sources indicate that it has always been well under 10,000.

While the Gulf Cooperation Council could not play a major military role during the Gulf War, it did play an important symbolic one. All of the GCC states cooperated with the UN Coalition. Bahrain, Saudi Arabia, Oman, and the UAE provided massive aid in the form of basing, fuel, and aid in kind. All of the GCC states sent at least token forces to join the Arab land forces that fought in Operation Desert Storm. All made major efforts to improve both their own defenses and their cooperation.

Nevertheless, the southern Gulf states made little progress towards effective military cooperation during the Iran-Iraq War, and the beginning of the Gulf War. Oman and Saudi Arabia proved to be rivals that could not agree on the shape joint forces should take. They have never set up an effective aid system to help their poorer members like Bahrain and Oman, and only Saudi Arabia ever provided its share of a \$1.8 billion aid pledge to Bahrain.³

Before the Gulf War, Oman provided only grudging and cosmetic support for Saudi Arabia's call for the creation of a Gulf Defense Force at al-Batin. This refusal came partly because the proposed force was to be under Saudi command, and partly because the force was primarily oriented towards the defense of Kuwait. Oman and Kuwait also disagreed over other issues. Kuwait pressed for freer movement of Gulf labor than Oman preferred, and refused to sign intelligence agreements that would provide more data on the movement of politically sensitive individuals.

Bahrain and Qatar indulged in petty border skirmishes. The different sheikdoms of the UAE divided against each other, over their relations with other members of the GCC, and over their relations with Iran, Iraq, and the West. For example, Abu Dhabi and Dubai refused to fully cooperate during the initial Peninsular Shield exercises even though both are part of the UAE.

Oman proposed during the Gulf War that the southern Gulf states cooperate to create a 100,000 man GCC Force, but found itself virtually isolated within the GCC. Saudi Arabia pressed for a far less ambitious plan to upgrade the Peninsular Defense Force that had existed before the war, but also received little real support. The resulting disputes among the GCC states have led to a situation where no substantive steps have been taken to create more integrated or interoperable forces.

While the GCC nations did appear to commit themselves to collective security arrangements involving Egypt and Syria when they met in Damascus in March, 1991, their "Damascus Declaration" soon turned out to be meaningless. Saudi Arabia and Kuwait

³ Defense News, March 30, 1992, wire service release

quickly decided not to station large Egyptian or Syrian forces on their soil and cut back on payments and subsidies. The most that could be agreed to was the idea of Egyptian and Syrian "rapid return" forces.

In spite of all the risks exposed by the Gulf War, the GCC still tends to substitute rhetoric for military cooperation and serious planning. Discussions of military standardization, common support facilities, and common military production facilities lead to far more words and studies than actions. The various member states still suffer from long standing border disputes and rivalries, and substantive cooperation tends to fade the moment that member states no longer face a common threat from Iran or Iraq.

Saudi Arabia ⁴

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 50 | 24 | 40 | 1,270 | 47 | - |
| 1973 | 75 | 85 | 70 | 1,880 | 84 | 2 |
| 1982 | 80 | 450 | 191 | 22,040 | 3,200 | - |
| 1988 | 84 | 550 | 179 | 13,560 | 3,000 | 5 |
| 1991 | 112 | 700 | 250 | 31,860 | 7,100 | - |
| 1993 | 154 | 730 | - | 14,500 | 4,500 | - |

Modern Saudi Arabia owes its existence to one of the few Arab military geniuses of the colonial period: Abdul Aziz ibn Saud. The Saud family had conquered much of Arabia

⁴ The military manpower, force strength, and equipment estimates in this section are made by the author using a wide range of sources, including computerized data bases, interviews, and press clipping services. Most are impossible to reference in ways of use to the reader. The force strength statistics are generally taken from interviews, and from the sources reference for each paragraph. They also draw heavily on his The Gulf and the Search for Strategic Stability (Boulder, Westview, 1984) and The Gulf and the West (Boulder, Westview, 1988).

Extensive use has also been made of the annual editions of the International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159; and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv), especially the 1990-1991 edition and working materials from the coming edition. Material has also been drawn from computer print outs from NEXIS, the United States Naval Institute data base, and from the DMS/FI Market Intelligence Reports data base. Other sources include the Military Technology "World Defense Almanac for 1991-1992," published in early 1992; Foreign Affairs Division, "Middle East Arms Control and Related Issues," Washington, Congressional Research Service, 91-384F, May 1, 1991; Anthony R. Tucker, "Saudi Arabia's Military Build-Up," Armed Forces, February, 1989, pp. 62-66; Jacob Goldberg, "The Saudi Military Build-up: Strategy and Risks," Middle East Review, Spring, 1989, pp. 3-12; and Middle East Economic Digest, "MEED Special Report: Defense," Volume 35, December 13, 1991.

Weapons data are taken from many sources, including computerized material available in NEXIS, and various editions of Jane's Fighting Ships (Jane's Publishing); Jane's Naval Weapons Systems (Jane's Publishing); Jane's Armor and Artillery (Jane's Publishing); Jane's Infantry Weapons (Jane's Publishing); Jane's Military Vehicles and Logistics (Jane's Publishing); Jane's Land-Base Air Defense (Jane's Publishing); Jane's All the World's Aircraft (Jane's Publishing); Jane's Battlefield Surveillance Systems, (Jane's Publishing); Jane's Radar and Electronic Warfare Systems (Jane's Publishing); Jane's C³I Systems (Jane's Publishing); Jane's Air-Launched Weapons Systems (Jane's Publishing); Jane's Defense Appointments & Procurement Handbook (Middle East Edition) (Jane's Publishing); Tanks of the World (Bernard and Grafe); Weyer's Warships (Bernard and Grafe); and Warplanes of the World (Bernard and Grafe).

Other military background, effectiveness, strength, organizational, and history data are taken from Anthony H. Cordesman, The Gulf and the Search for Strategic Stability, Boulder, Westview, 1984, The Gulf and the West, Boulder, Westview, 1988, and Weapons of Mass Destruction in the Middle East, London, Brassey's/RUSI, 1991; Anthony H. Cordesman and Abraham Wagner, The Lessons of Modern War, Volume II, Boulder, Westview, 1989; the relevant country or war sections of Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991; Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Washington, Department of Defense, April, 1992; Department of Defense and Department of State, Congressional Presentation for Security Assistance Programs, Fiscal Year 1993, Washington, Department of State, 1992; various annual editions of John Laffin's The World in Conflict or War Annual, London, Brassey's, and John Keegan, World Armies, London, Macmillan, 1983.

once before, in alliance with Muhammad ibn Abd al-Wahhab who was the leader of a puritanical Islamic reform movement, but it had been driven from power by internal struggles and the Turks. It was living in virtually exile and obscurity, when Abdul Aziz and a small group of followers seized Riyadh, the former Saudi seat of power from the Shammar tribes in 1902.

Abdul Aziz rapidly built up a confederation of tribes that gave him control over most of the Najd in eastern Arabia by 1906, and forged the tribes of the area into a military brotherhood called the Ikhwan by creating military villages where he provided homes, mosques, funds, and weapons. By 1913, Abdul Aziz's forces were challenging the Turks, and the start of World War I created a situation which soon led Britain to provide Abdul Aziz with money and weapons. He used these resources to attack both the Turks, and the rival Al Rashid dynasty, and drove the Rashid Dynasty out of power in 1921. By 1922, Abdul Aziz had control over most of Arabia, except the southern region of the Hijaz, with the holy cities of Makkah and Madina.

Abdul Aziz conquered the Hijaz between 1924 and 1925, and became a major regional military power that threatened Kuwait, Iraq, Oman, Yemen, and Jordan. By this time, however, the Ikhwan had become an internal threat to his rule, and Abdul Aziz realized that any further military action might both deprive him of control over the territory he had conquered and lead to British intervention. As a result, he founded a small regular army, and forged an alliance with many of the tribal leaders in the areas he had conquered. He acquired British machine guns, armored cars, and light artillery, and support from the RAF. In January, 1930, he fought a major battle with the Ikhwan and brought them decisively under control. This victory effectively ended the period of Saudi conquests, except for a border war with Yemen during 1931-1934.

The depression of the 1930s threatened Abdul Aziz's ability to fund his troops and supporters, but the discovery of oil in 1933 gave him the funds to gradually forge the tribal areas into a country. It also introduced American influence into the region for the first time, which was reinforced by the creation of military ties between the U.S. and Saudi Arabia during World War II. This led to the creation of a U.S. military training mission in 1952.

The period from the 1950s through the mid-1960s involved a long series of complex struggles between Saudi Arabia, its neighbors, and other elements of the Arab world. The rise of Nasser threatened the Saudi family's control of the military forces and the country, and led to deep divisions within the royal family.

When Abdul Aziz died in 1953, he was succeeded by his son Saud, who proved to be a weak and incompetent ruler, who provoked a number of quarrels with his neighbors, and who proved unable to deal with the political threat of Nasser and other Arab socialist movements. Saudi Arabia became involved in a dispute over the Burami Oasis with Oman and the UAE during 1952-1955, and in an effort to seize control of part of Western Oman during 1957 to 1959.

At the same time, Saudi Arabia was affected by the growing radicalism of Nassir's Egypt and the rebellion against Britain in the Aden Protectorates between 1953 and 1959. It also became involved in a major civil war on its southern border in North Yemen between 1962 and 1967. North Yemen was ruled by a royal family that combined the role of ruler with that of Imam of North Yemen's religious sect. The Imam Ahmad died on September 19, 1962, and his son al-Badr claimed the throne. On September 26, President Nasser of Egypt backed Colonel Abdullah Sallah in a socialist coup against al-Badr. Threatened by the prospect of another socialist regime on Saudi Arabia's border, King Saud provided support for the Imam.

While none of these involvements faced Saudi Arabia with direct external threats, they did lead to major efforts by Nassir and others to stimulate internal unrest and several coup attempts. At the same time, King Saud proved unable to manage the nation's finances, control the younger princes, or secure the loyalty of the armed forces.

In 1964, the royal family combined to force Saud from power, and brought Faisal, another of Abdul Aziz's many sons to power. Faisal proved to be an extremely shrewd and competent ruler. He strengthened Saudi aid to the royalists in Yemen, and used Egypt's growing financial problems and military confrontation with Israel to reach an agreement that led Egyptian troops to withdraw from Yemen in 1967.

Faisal also took the decisions that created the modern Saudi armed forces. Two incidents drove Saudi Arabia to try to create an effective air force and army. The first occurred along the border with North Yemen (the YAR) in November, 1969. Although Egypt had left North Yemen in 1967, the republican forces resisted and then drove back the Imam Badr's forces. Saudi Arabia supported him in counter attacking. Yemen then sent aircraft to attack the Saudi border area around Najran. These air raids continued until Badr's forces collapsed in late 1970. The second occurred on November 26, 1969, when South Yemen (the PDRY) attacked and captured Al Wadiyah, a Saudi border oasis, in an effort to halt Saudi support for anti-Marxist rebels in the border area. Saudi forces counter-attacked, but the key to recovering the oasis was a series of air strikes on the PDRY. This

demonstration of the practical realities of modern air power was a key factor in shaping Saudi perceptions.⁵

King Faisal was a key force in triggering the Arab oil embargo after the October, 1973 conflict between the Arabs and Israel, and then proved able to lead the country in using its massive new oil wealth to modernize both the state and the military forces. By the time he was assassinated in March, 1975, and was replaced by King Khalid, Saudi Arabia was not only relatively stable, but wealthy and taking the first steps to create a modern army and air force.

Between 1975 and 1990, Saudi Arabia emerged as a major world financial and oil power, and as a significant political power in the Arab world. The royal family also established a relatively stable government, and easily managed the transition in power when Khalid died in 1982, and was replaced by King Fahd. During the late 1970s and 1980s, Saudi Arabia played a key role in subsidizing conservative and moderate regimes throughout the Arab world, checking the influence of Khomeini in Bahrain and the southern Gulf, aiding Iraq in its war with Iran, and containing Marxist radicalism in the PDRY (South Yemen). Saudi Arabia has also gradually moderated its stance towards Israel.

Saudi Strengths and External Vulnerabilities

Today, Saudi Arabia has become the key to any attempt to create strategic stability in the Gulf. As it demonstrated during the Iran-Iraq War and Gulf War, Saudi Arabia can cooperate closely with the U.S. and the West in checking aggression from Iraq or Iran. It is by far the largest and most powerful Southern Gulf state. Regardless of the actions of the Gulf Cooperation Council, Saudi Arabia is the central focus for cooperative defense in the region.

As the same time, Saudi Arabia has many strategic and military weaknesses. While Saudi Arabia is large enough to develop significant defense and deterrent capabilities by southern Gulf standards, it cannot meet the challenge of Iran or Iraq -- alone or in cooperation with its Southern Gulf neighbors. As the table below shows, Saudi Arabia's forces face a formidable problem in defending a large nation.

⁵ Ironically, the experience was reversed in March, 1973. The PDRY air force strafed the Saudi garrison at Al Wadia in an effort to persuade Saudi Arabia to end its support for anti-PDRY rebels.

Table 7-?
The Military Balance Affecting Saudi Arabia

| | <u>Saudi Arabia</u> | <u>GCC</u> | <u>Iran</u> | <u>Iraq</u> | <u>Yemen</u> |
|---------------------------------------|---------------------|------------|-------------|-------------|--------------|
| Total Population | 16,200,000 | 23,441,000 | 61,183,000 | 18,446,000 | 10,395,000 |
| Military Age Males (18-22) | 473,500 | 643,600 | 2,732,000 | - | 473,600 |
| Total Military Manpower | 154,000 | 317,300 | 528,000 | 430,000 | 103,500 |
| Regular Military Manpower | 106,000 | 262,500 | 440,000 | 405,000 | 63,500 |
| Army and Guard Manpower | 128,000 | 212,500 | 475,000 | 350,000 | 100,000 |
| Regular Army Manpower | 73,000 | 154,000 | 305,000 | 350,000 | 60,000 |
| Tanks | 730 | 1,145 | 800 | 2,900 | 1,300 |
| Other Major Armor | 4,000 | 4898 | 990 | 4,400 | 1,700 |
| Artillery | 460 | 727 | 2,500 | 1,850 | 560 |
| Air Force and Air Defense Manpower | 22,000 | 28,100 | 35,000 | 30,000 | 2,000 |
| Total Combat Aircraft | 293 | 565 | 262 | 380 | 101 |
| Bombers | 0 | 0 | 0 | 6 | 0 |
| Fighter/Attack | 278 | 538 | 254 | 359 | 101 |
| Recce and C3I | 15 | 27 | 8 | 15 | 0 |
| Armed Helicopters | 0 | 51 | 105 | 120 | 20 |
| Major SAM Launchers | 96 | 197 | 250 | 350 | 140 |
| Navy Manpower | 11,000 | 16,400 | 18,000 | 1,000 | 1,500 |
| Missile Surface Combatants | 17 | 32 | 8 | 1 | 8 |
| Submarines | 0 | 0 | 2 | 0 | 0 |
| Mine Vessels | 5 | 5 | 4 | 4 | 9 |
| Amphibious Vessels | 12 | 20 | 10 | 1 | |

Adapted by the author from International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159; and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv). Figures often differ in detail from the estimates given later for Saudi forces.

Saudi Arabia has a land area of about 2,150,000 kilometers, roughly one-fourth the size of the U.S.. It has a 222 kilometer border with Kuwait, a 448 kilometer boundary with Iraq, a 198 kilometer boundary along the Iraqi-Saudi Neutral Zone, a 742 kilometer border with Jordan, a 1,458 kilometer border with Yemen, a 676 kilometer border with Oman, a 586 kilometer border with the UAE, and a 40 kilometer border with Qatar. A causeway connects Saudi Arabia with Bahrain. In addition, Saudi Arabia has a total of 2,510 kilometers of coastline on the Gulf and Red Sea, opposite to Iran, Egypt, the Sudan, Ethiopia, and Djibouti.⁶ Saudi Arabia has only about 2.33 cubic kilometers of internal renewable water resources, which is very low, and which amounts to about 321 cubic meters per person, less than one-seventh the total for a citizen of the U.S.⁷

This large territory offers Saudi Arabia the advantage of strategic depth, but it prevents strategic concentration. It makes it impossible to concentrate its limited military forces on any one front, or to maintain any kind of continuous defense of its borders or coast. Saudi Arabia must also cope with the fact that its population is dispersed into cities that are separated by long distances and which are exceptionally vulnerable to attacks on their water and power supplies. It offers many high value targets in terms of oil and gas facilities, desalinization plants, and central power grids. It is heavily dependent on secure maritime and air traffic for imports and exports.

Saudi Arabia's mix of boundaries and coastlines also explains both Saudi Arabia's importance in defending the southern Gulf, and many of its defense problems. It is within easy air strike range of Iraq, and amphibious and air range of Iran. It has had a long series of border problems and clashes with Yemen, It faces a radical Sudan across the Red Sea, and the prospect of continuing instability in the other Red Sea states, While it has consistently tried to distance itself from military involvement between Israel and the Arab states, it can never be certain that it will not be threatened by the escalation of an Arab-Israel conflict or pressure from one of the Arab confrontation states.

Its borders themselves are a source of potential tension. Saudi Arabia has no defined border with Yemen or the UAE, has only recently reached a border settlement with Oman, has not ratified its border agreements with Iraq and disputes ownership of Qaruh and Umm al Maradim Islands with Kuwait. Although it reached an agreement with Qatar on their border in 1965, the border has never been demarcated, and Qatar feels that Saudi Arabia has infringed on its territory by building roads and facilities in the area. A confrontation

⁶ CIA, World Factbook, 1991, pp. 273-274.

⁷ Los Angeles Times, January 28, 1992, p. C-1.

between roving bedouin caused a minor clash between Saudi Arabia and Qatar on September 30, 1992. This clash took place at a small outpost at al-Khofuous, about 80 miles southeast of Doha. Two Qataris were killed and a third taken prisoner, and the clash is still seen by some in the Gulf as a symbol of Saudi pressure on the smaller Gulf states -- although it was quickly resolved by discussions between King Fahd and Sheik Hamad bin Khalifa Al Thani, the Crown Prince and Defense Minister of Qatar.⁸

These geographic and political factors place Saudi Arabia in a very different strategic position from that of any other Southern Gulf state. Unlike the other southern Gulf states, Saudi Arabia must secure its borders against threats from the Yemens, the Red Sea, and the Levant as well as the Gulf. This strategic position forces Saudi Arabia to disperse its limited military resources to forward bases throughout the country, and this has left it with limited forces on any given front.

Saudi Arabia is also the richest single prize in the Middle East. Saudi Arabia has by far the largest oil reserves of any country in the world. It had produced about 62.4 billion barrels of oil by the end of 1990, and had a high reserve to production ratio of 112/1.⁹ As of January 1, 1992, it had estimated proved oil reserves of up to 257 billion barrels, with probable additional reserves of 42 billion barrels, and gas reserves of 184,000 billion cubic feet. It had about 33% of the world's total oil reserves, and produced at a rate of about 6.3-8.2 million barrels per day during 1990 and 1991.¹⁰ It also had a share of the Saudi-Iraqi neutral zone, which had another 5 billion barrels of proven reserves, and 1,000 billion cubic feet of gas.¹¹

This oil wealth makes Saudi Arabia the natural target of radical political movements and ambitious states throughout the Middle East, and the issue is not simply one of conquest. Unlike Middle Eastern states with large populations and declining oil reserves, Saudi Arabia's economic interests coincide with those of the West. It benefits most from moderate, stable long term prices and producing at relatively high levels. In contrast, states like Iran and Iraq benefit from limited world oil production, high prices, and quotas that favor them at the expense of Saudi Arabia. As a result, Saudi Arabia faces decades of

⁸ Washington Post, October 1, 1993, p. A-19; October 2, 1992, p. A-41; Philadelphia Inquirer, October 3, 1992, p. D-7; Washington Times, October 2, 1992, p. A-9.

⁹ Oil and Gas Journal, September 23, 1991, p. 62.

¹⁰ OJJ Special, Oil and Gas Journal, December 30, 1991, pp. 43-49; Other estimates indicate 260 billion barrels of proven reserves and 42 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the Oil and Gas Journal, September 23, 1991, p. 62. These estimates have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerates its reserves and relative importance.

¹¹ OJJ Special, Oil and Gas Journal, December 30, 1991, pp. 43-49

potential intimidation from Iran and Iraq, if they can reach a level of military capability that can successfully challenge a combination of Saudi and Western military forces.

Air power is Saudi Arabia's only means of compensating for the weakness and dispersal of its land and naval forces. Saudi Arabia can only use air power in such a role, however, if (a) its limited first line fighter strength has the range and refueling capability to mass quickly, (b) its air units can maintain a decisive technical and performance edge over threat forces, (c) it can provide sufficient air defense capability to provide air cover for Saudi ground forces, naval forces, and key targets, (d) it can provide sufficient dual capability in the attack mission to offset its limited ground strength and give it time to reinforce its army units, and (e) its air units are cumulatively strong enough to provide at least limited coverage of the Northern Gulf or Red Sea front while facing an active threat on the other front.

Even with airpower, however, Saudi Arabia must cooperate closely with the West and the United States. It is vital to the West in terms of its oil resources, its geographic position, and its ability to provide facilities and forces that allow the West to deploy and operate in strength without a massive and time consuming build-up. At the same time, the West is vital to Saudi Arabia. As a conservative monarchy that lacks the population and skills to create military forces large enough to defend its territory or regional position, it is dependent on West power projection capabilities to check Iran and Iraq, and contain any spillover of an Arab-Israel conflict. This, however, confronts Saudi Arabia with the dilemma of depending on the U.S. --Israel's single major ally -- as the ultimate guarantor of its security.

Internal Change and Internal Security

Saudi Arabia face internal problems as well as external ones. Saudi society as a whole is still divided into regional and tribal groups. At the same time, radical social changes have urbanized much of Saudi Arabia, and produced considerable stress within Saudi society. This has led to the rise of Islamic fundamentalism which challenges the process of secular development, and the ruling Saud-Wahabi elite. At the same time, these same changes have led to a demand for secular reform and the liberalization of Wahabi restraints on commerce, the role of women, and social custom by a large number of businessmen and secular educated professionals.¹²

¹² The author has encountered many of these attitudes during his visits to Saudi Arabia. For typical U.S. reporting see the Baltimore Sun, July 28, 1991, p. 11-A; Security Intelligence, February 10, 1992, p. 8; New York Times, January 30, 1992, p. 3, March 1, 1992, p. 8;

These problems were significant before the Gulf War, but became much more serious during and after the conflict. During 1990-1992, Islamic fundamentalist began to demand a return to super-orthodoxy. At the same time, secular reformers petitioned the King, and Saudi women even made a brief protest for women's rights by driving their own cars. While the King attempted to defuse this situation by compromising with both sides, and forming an appointed council of advisors or Majlis, the net result was a steady -- if covert -- rise in anti-Saud and anti-Wahabi political action by Saudi Arabia's Islamic fundamentalists.

The challenge of Islamic fundamentalism within Saudi Arabia has also led to growing concern within the Saudi government over Islamic extremism overseas. Saudi Arabia once freely funded Islamic fundamentalist movements in Afghanistan, the Sudan, Ethiopia, Algeria, and many other areas before the Gulf War with little concern for their exact character. Since that time, the Saudi government has become more selective, and more careful about distinguishing between religious fundamentalism and religious extremism. It has also begun to put pressure on its private citizens to show more care and restraint in the Islamic movements they fund.

This concern affects both internal and external security. Saudi Arabia is actively competing with Iran for influence over the rising religious institutions of the former Soviet Islamic republics and is locked into an ideological conflict with Iran of which state has the greatest Islamic legitimacy that no amount of diplomacy can avoid. Saudi Arabia now faces a similar challenge from Islamic extremism in the Sudan, and from the growing Islamic extremist and terrorist movements in many other Arab states. Saudi Arabia not only benefits from the friendship of a moderate and secular Egypt, and from a secular Jordan, the Saudi royal family and Wahabi leaders are an inevitable target for those who wish to use Islam to serve their own ambitions. As Saudi Arabia is learning, it can never be orthodox or supportive enough to win any true tolerance from such movements.

While the Saud family still seems to be in secure control of the country, and generally relies on coopting its opposition rather than repressing it, the threat of Arab socialism has been replaced by the threat of Islamic fundamentalism. This helps explain why King Fahd reorganized his cabinet on August 5, 1991, and why he announced a series of reforms on November 17, 1991. These reforms included the formation of a council of Saudi citizens or Majlis, the introduction of a written body of laws, and increased autonomy for the provinces. King Fahd announced these reforms over the state broadcasting network in his first major address since broadcasting in response to Iraq's invasion of Kuwait.

King Fahd's announcement of a Majlis was at least partly a reaction to demands for both fundamentalists and secular reformers for great participation in the government. It was followed by further speeches by the king, and by speeches by senior religious figures like Sheik Ibn Baz, who denounced religious extremism, and by senior political figures like Prince Turki Faisal who gave a rare speech in a Mosque refuting some of the charges against the royal family.

The King announced on March 2, 1992, that the Majlis would have 61 members, that it would include the King who would act as prime minister, that it would have a four year term of office, and that it would have limited powers, including the right to examine plans for economic and social development, question cabinet members, examine annual plans submitted by each ministry, and propose new laws or amendments. The king announced that similar 10 man councils would be set up in each of the 14 provinces, and that the governors would have added power and autonomy. He issued a long list of laws setting forth the basic rules of the government in writing, in the first codification of these laws since the founding of the Kingdom 60 years earlier. These laws included provisions that made the king the commander-in-chief of the armed forces; called for the succession to pass to the most qualified member of the Royal family, rather than according to the order of succession; established an independent judiciary; guaranteed the privacy of the home, mail, and phone; and prohibited arbitrary arrest.

King Fahd announced the members of the new Majlis on September 23, 1992, the sixtieth anniversary of the founding of the monarchy. He appointed Mohammed bin Ibrahim bin Jubair as speaker. At the same time, the king stated that, "The democratic systems prevailing in the world are systems which, in their structure, do not suit this region and our people...The system of free elections is not part of Islamic theology."¹³

It is unclear that the creation of a purely advisory Majlis, and written code of law, is enough to meet any group's expectations. There are roughly sixty-two princes who hold senior civil and military positions in the government, and this causes a substantial amount of jealousy. Religious fundamentalists like Sheik Haffan Al-Safar have already rejected the king's reforms, as have Saudi moderates. More mainstream religious leaders like Sheik Abdul Aziz ibn Baz -- a venerated blind leader who has also publicly condemned Islamic

¹³ New York Times, August 6, 1991, p. A-5, November 18, 1991, p. A-3, December 31, 1991, p. A-1, March 30, 1992, p. A-6; Washington Post, December 31, 1991, p. A-10, March 2, 1992, p. A-1, March 6, 1992, p. A-16, September 18, 1992, p. A-31; Boston Globe, September 18, 1992, p. 6; Chicago Tribune, September 18, 1992, p. I-4; Philadelphia Inquirer, September 18, 1992, p. B-22; Newsweek, March 16, 1992, p. 45.

fundamentalist cassettes -- have opposed some of the governments efforts to suppress political opposition by the clergy, and 100 leading clerics signed a petition which among other things, called for the punishment of all who gained wealth through illegal means, "whoever they are and without any exception of rank." The religious pressures that led to the fundamentalist uprising in the Grand Mosque on November 20, 1979, are still very real. At the same time, so are the tensions between Shi'ites in the Eastern Province, the conservative Wahabis in the Najd, and the Shafii Sunnis in the Hijaz.¹⁴

The strains of massive social change and urbanization, resulting from Saudi Arabia's oil wealth and growing exposure to the outside world, present a continuing challenge of another kind. Saudi Arabia continues a high level of spending that has produced steady budget deficits, and which continues to lead to urbanization and unplanned social change.

The Saudi economy and Saudi political stability suffer from a failure to clearly demarcate the powers and rights of members of the royal family, who often abuse their political power to dominate major military and civil deals and developments. The ruling Saud family also is now burdened with some 7,000 princes, many of whom demand special privileges and use their influence to violate Saudi law.¹⁵ The ruling family is also divided between the now dominant Sudairi family. The leaders of the Sudairi faction now include the King, Minister of Defense Prince Sultan, head of military intelligence Prince Turki, and Prince Naif. They are balanced by Crown Prince and Deputy Prime Minister Abdullah, and a number of other princes, including Prince Saud al-Faisal, the Foreign Minister and son of King Faisal.

These problems also extend to the command level, where the divisions between members of the Royal family often prevent the selection of effective commanders or effective unity of command. One of Saudi Arabia's most brilliant officers, Prince Fahd bin Abdullah was shunted aside because of a "glass ceiling" placed on the promotion of junior princes and the fact he belong to a secondary branch of the royal family. The de facto commander in chief of Saudi forces during the Gulf War, Prince Khalid bin Sultan, was

¹⁴ Christian Science Monitor, March 16, 1992, p. 19; Dilip Hero, "Saudi Reforms: Too Little and 32 Years Late," The Nation, April 13, 1992, pp. 486-487; Newsweek, March 16, 1992, p. 45; New York Times, December 31, 1991, p. A-1, January 1, 1992, p. 3, February 25, 1992, p. A-6, March 2, 1992, p. A-1, March 9, 1992, pp. A1 and A7, March 30, 1992, p. A-6; Fred Halliday, "Facelift for a tribal dictatorship," Guardian Weekly, March 15, 1992; Manchester Guardian Weekly, March 8, 1992, p. 10; Economist, March 7, 1992, pp. 42-43; Washington Post, December 31, 1992, p. A-10, March 6, 1992, p. A16; Financial Times, March 3, 1992, p. 4; Boston Globe, September 18, 1992, p. 6.

¹⁵ Estimates range from 2,000 to 7,000 princes. The higher figure represents many sons with little or no influence who are descended from collateral branches of the family. the 2,000 figure is a rough estimate of the number who have any real influence. The main power is concentrated in first and second generation sons descended directly from Abdul Aziz.

forced to resign in September, 1991, when he asked to be promoted to the post of military chief of staff -- a position effectively left vacant for several years because of the illness of the officer that formally held the title. Other senior Saudi officers unrelated to the royal family have been denied promotion because of a wide range of internal political disputes.¹⁶

There is still a heritage of regional tension between the followers of Ibn Saud in the Najd and the north and the citizens of the Hijaz around Mecca and Medina.¹⁷ This is compounded by the fact they follow different branches of Sunni law, and tribal resentments and feuds dating back to the rise of Ibn Saud. More seriously, part of the population of the oil rich Eastern Province is Shi'ite: Probably at least 40%.¹⁸ The regime has done a reasonably good job of providing a mix of personal incentives and internal security controls, and has recently limited the abuse of police power, particularly the sudden search of Shi'ite homes. Nevertheless, there have been recurrent incidents of sabotage of oil facilities, and there are cells of radical Shi'ites in the Eastern Province who have obtained some support from Iran. The Shi'ite population is too small to succeed in any kind of rising or separatism, but it does present a significant source of social tension in world's most important oil producing area.

Saudi Defense Expenditures

Saudi Arabia has slowly built up modern military forces over the last two decades by what can only be called brute force methods. Beginning without anything approaching the modern infrastructure and educated populations of the Maghreb, Levant, or Northern Gulf, Saudi Arabia has spent several hundred billion dollars to create a modern system of bases, the ability to train and support soldiers capable of operating modern military equipment, and a pool of equipment modern enough to give it a potential edge over Iran and Iraq.

¹⁶ This dismissal was partly the result of the fact that Kalid had used U.S. Green Berets during the build-up for Desert Storm to help reorganize Saudi forces, and remove some of their bureaucratic rigidities. This caused considerable resentment, and made Khalid's promotion more difficult, although it significantly improved Saudi performance during the Gulf War. New York Times, October 15, 1991, p. 1; Washington Post, March 15, 1992, p. A-35.

¹⁷ The reader should be aware that this often leads to exaggerated reports of tension and corruption. Anyone who has lived in Saudi Arabia becomes aware that royal family rumors, and rumors of internal conflicts, are almost a national sport. The Hijazi are masters of this sport, although sometimes surpassed by whatever businessman who has just suffered in a deal with one of the princes. It is far harder for a Westerner to understand the pressures building up within the Islamic fundamentalists, but the movement does affect a significant number of Saudi youths, and often has intense support at the university level. Cassettes are circulated nationally, and many very well educated Saudis support fundamentalism, as well as many traditionalists.

¹⁸ Figures referring to 60%-70% Shi'ite do not seem to be correct.

This effort has been fueled by its petroleum sector. Saudi Arabia's oil reserves have given it immense oil wealth, although this wealth has varied sharply with oil prices and market conditions. Saudi oil revenues reached a peak of \$133 billion a year in 1981, dropped to \$46 billion in 1983, and averaged around \$19 billion to \$25 billion in 1984-1988.¹⁹ Its oil revenues have risen since that time. They rose to \$28.3 billion in 1989, or about 85% of all exports. Sharper rises occurred in 1990 and 1991 because of the Gulf War, but accurate figures are not yet available. Such shifts are critical to the Saudi economy and the expansion of Saudi military forces. The petroleum sector accounts for about 70% of all budget revenues and 33% of the Saudi GDP. Industrial production, much of it petroleum oriented, accounts for 37% of the GDP. Agriculture accounts for 10% of the GDP, but only because of wasteful government subsidies and the waste of irreplaceable "fossil" well water.²⁰

Saudi Arabia's military development has, however, been an incredibly costly process. It has had the highest ratio of expenditures to active men in uniform of any country in the developing world for more than a quarter century. It also spent an average of 20% of its GNP on military forces during the 1980s, sums amounting to from \$14 to \$24 billion, although its full time active manpower only ranged from 79,000 to 84,000. Most of these expenditures -- probably on the order of 60-65% -- have been spent on infrastructure, foreign services and maintenance, and basic manpower training. Saudi Arabia has had to convert a nomadic society into one capable of operating modern armor, ships, and aircraft, and has only been able to do this by creating entire military cities, new ports, and major road networks. No nation in military history has had to take a more brute force approach to creating the capability to use modern military technology.

Saudi Arabia has also experienced major swings in defense spending, many driven by its dependence on oil revenues. These problems became particularly acute at the end of the 1980s, when its oil revenues dropped to about one fifth of their 1981 level of around \$100 billion, and Saudi financial reserves dropped to as little as one-third their 1981 level of \$190 billion. Saudi Arabia had to cut its original FY1986, FY1987, FY1987, FY1988, FY1989, and FY1990 budget estimates, and accept annual deficits ranging from \$10 billion to \$20 billion.²¹

¹⁹ Congressional Quarterly, The Middle East, 7th Edition, Washington, Congressional Quarterly, 1990, p. 117.

²⁰ CIA, World Factbook, 1991, pp. 273-274.

²¹ The FY1988 budget was planned to have a \$10 billion deficit, with \$8 billion in foreign borrowing. It involved the first foreign borrowing in 25 years and the first increase in taxes in eight years -- all on foreign businesses. The actual budget reached a \$15-17 billion deficit by the year's end, with some \$10 billion in

For example, its FY1988 budget was projected to be 141.2 billion Riyals (\$37.7 billion), down some 17% from the 1987 level of 170 billion Riyals. Oil revenues were unofficially projected at 65.2 billion Riyals. The 1988 deficit was projected to be 35.9 billion Riyals (\$9.57 billion) versus deficits of about 50 billion Riyals in the previous four years. Saudi Arabia sought to reduce the deficit through utility surcharges, 12-20% import duties, hospital charges, airline fare increases, and local borrowing in the form of some \$8 billion in bonds.²²

The Gulf War made this situation much worse. Although Saudi oil revenues rose, the kingdom had to spend up to \$55 billion on the costs of the crisis, ranging from payments to members of the UN Coalition to expenses for the Saudi military and refugee housing. The 1991 budget deficit reached a record \$21 billion, and the current account deficit rose to \$24 billion. Saudi Arabia was forced to adopt a working budget for 1991 because it could not keep track of its expenditures, and raise its estimated 1992 by 27% over the 1990 budget to allow for unanticipated costs.

It had to borrow some \$7 billion dollars, \$4.5 billion from internationally syndicated loans and \$2.5 billion from local banks. This need to borrow while paying interest created new tensions with Saudi Arabia's Islamic fundamentalists -- who believe that interest is forbidden by the Koran. While Saudi Arabia is attempting to reduce its borrowing in 1992, it will still run a major deficit and this will mark ten straight years of deficit spending. It also will still have a current account deficit of at least \$1 billion, and debt servicing will rise to 10% of the Saudi budget.²³

In 1993, the Saudi economy is growing at a rate of about 6% per year, but the government debt has risen from nothing in 1988 to over \$50 billion. Central bank reserves have dropped from more than \$100 billion to only \$4 billion, and Saudi Arabia has had to cut some defense expenditures, and delay and cancel arms purchases. These financial problems affect the delivery of key weapons systems like the Abrams tank, Bradley fighting vehicle, Patriot, and multiple launch rocket system. They have also delayed some \$600 million worth of support, maintenance, repair, and training contracts.²⁴

financing. Economist, January 16, 1988, p. 59; Defense News, January 18, 1988, p. 4.

²² An effort to impose taxes of up to 30% on foreigners was withdrawn shortly after it was proposed. Nearly two-thirds of the bonds were bought by the Saudi Arabian government. Wall Street Journal, December 31, 1987, p. 4; January 5, 1988, p. 21, January 6, 1988, p. 12, January 7, 1988, p. 16, January 12, 1988, p. 2; Washington Post, December 31, 1987, p. E-3, January 12, 1988, p. C-3; Economist, January 16-22, 1988, p. 59; New York Times, January 6, 1988, p. A-1; Chicago Tribune, January 27, 1988, p. 3-7.

²³ Middle East Economic Digest, January 17, 1992, pp. 4-5, March 20, 1992, pp. 10-16.

²⁴ Jane's Defense Weekly, December 5, 1992, p. 5; Business Week, February 15, 1993, p. 50.

The potential offset to this financial situation is a massive Saudi investment in increasing oil production to a sustainable 10 million barrels a day, and the fact that the Kingdom massively boosted its share of the oil market during the Gulf War -- rising from 5.4 MMBD before the war to 8.5 MMBD after the conflict. Saudi Arabia also probably still retains around \$50 billion in SAMA and government entity foreign investments, and \$20 billion in foreign assets controlled by public bodies.²⁵

Precise estimates of Saudi military spending are impossible to make. Saudi Arabia does not report many of its costs in its budget documents, and Saudi Arabia often adjusts its flow of defense expenditures without reporting them. One gets very different figures if one uses Saudi and outside sources, and the problem is compounded by the near impossibility of making accurate estimates of expenditures in constant Riyals and constant dollars, and Riyal to dollar conversions.

If one looks at recent Saudi figures, the FY 1986 Saudi defense budget was planned to be 64.6 billion Riyals (\$17.7 billion), or 32% of the total budget.²⁶ The oil revenue deficit then led to minor cuts and spending of about 64.09 billion Riyals (\$17.3 billion). The FY1987 defense budget was about 60.7 billion Riyals, or \$15.78 billion. The FY1988 defense budget, which includes the National Guard and the Interior Ministry and its police forces, was originally planned to be about 50.8 billion Riyals or \$13.21 billion. This was a cut of 9.9 billion Riyals or \$2.57 billion from FY1988.²⁷ The 1987 budget seems, however, to have risen to 60.8 billion Riyals, or \$16.23 billion. Recent Saudi figures have varied sharply, but the FY1988 defense budget seems to have been 50.8 billion Riyals (\$13.6 billion), and the FY1989 defense budget seems to have been 55.0 billion Riyals (\$14.69 billion).

The FY1990 budget seems to have been 51.9 billion Riyals (\$18.86 billion), but expenditures may have been 119.216 billion Riyals (\$31.86 billion) if one includes \$18 billion in Gulf War contributions to the U.S. and U.K. The FY1991 defense budget seems to have reached 100.4 billion Riyals (\$26.8 billion), include \$13.73 billion in contributions to the U.S., France, Britain, Kuwait, and other members of the UN Coalition.²⁸ The FY1992 budget has been projected at 54.3 billion Riyals.²⁹ These figures do not include Saudi military aid to other Arab states, which seems to have peaked in FY1985, when a

²⁵ Middle East Economic Digest, January 17, 1992, pp. 4-5, March 20, 1992, pp. 10-16.

²⁶ Saudi Arabia shifted its fiscal year to a calendar year in 1988.

²⁷ Defense News, January 18, 1988, p. 4.

²⁸ Based on estimates by the International Institute for Strategic Studies.

²⁹ Middle East Economic Digest, January 17, 1992, pp. 4-5.

combination of aid to Iraq and Syria may have driven foreign aid expenditures to over \$5 billion.³⁰

U.S. estimates of Saudi military spending are different. If one uses ACDA and CIA sources, Saudi defense expenditures were \$9.6 billion in 1978, \$ 12.4 billion in 1979, \$ 15.0 billion in 1980, \$18.4 billion in 1981, \$ 22.0 billion in 1982, \$ 24.8 billion in 1983, \$ 20.4 billion in 1984, \$ 21.3 billion in 1985, \$ 17.3 billion in 1986, \$ 16.2 billion in 1987, \$ 13.6 billion in 1988, \$ 14.7 billion in 1989, \$13.9 billion in 1990 (less expenses for the Gulf War), and \$14.5 billion in 1991 .³¹

While these debates over Saudi spending levels would normally be of only secondary interest, they provide one of the few broad indicators of overall military effort in the southern Gulf. Further, as a rough rule of thumb, Saudi Arabia must spend about \$13 billion a year in the 1990s, in 1992 dollars, simply to maintain its present force readiness, and considerably more for major force expansion and improvement.

Saudi Arms Imports

Saudi Arabia has long had high levels of arms imports, although the cost estimates of such transfers are highly misleading relative to those of most other Middle East countries because they include such a large portion of construction, and goods and services, which are called arms imports because they are funded as part of the U.S. foreign military sales program and other foreign sales programs. No other country in the developing world has gotten so few arms per dollar spent.

ACDA estimates the Saudi Arabia imported \$1,500 million worth of arms in 1978, \$1,200 million in 1979, \$1,600 million in 1980. \$2,700 million in 1981, \$2,800 million in 1982, \$3,800 million in 1983, \$3,300 million in 1984, \$3,800 million in 1985, \$5,500

³⁰ Data are based on excerpts of the Saudi national budgets, and reporting by the IISS. CIA, ACDA, SIPRI, and other estimates often differ significantly. The reader should also be aware that many major arms transactions in all Middle East countries are handled privately by their defense ministers, often on a multi-year basis. Many of these transactions are not reported to or through the central bank. Saudi Arabia, like other oil exporting states, complicates this situation further by using oil barter arrangements, offset arrangements, and constantly renegotiating major arms deals while deliveries are in progress. The data published in the IISS Military Balance, 1987-1988, indicate that the total manpower fit for service could be about 50-70% of the CIA estimate. (See p. 110).

³¹ The reader should be aware that there is little historical consistency in ACDA or CIA estimates of Saudi defense spending and estimates are constantly revised by billions of dollars for relatively long periods of time. While ACDA provides an estimate of spending in constant dollars, an examination of the conversion method quickly reveals that it is little more than a guesstimate. See Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, Table I, Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II, and Saudi Arabia section in the CIA, World Factbook, 1991 and 1992.

million in 1986, \$7,000 million in 1987, \$2,700 million in 1988, and \$4,200 million in 1989.³²

The ACDA estimates also show that Saudi Arabia gets most of its arms from three nations" The U.S., France, and Britain. According to ACDA, Saudi Arabia took delivery on \$12.125 billion worth of arms during 1979-1983. This included \$5.1 billion worth of arms from the U.S., \$2.5 billion from France, \$1.9 billion from the U.K., \$525 million from West Germany, \$200 million from Italy, and \$1,900 million from other countries.³³ It took delivery on \$19.530 billion worth of arms during 1984-1988. This included \$5.8 billion worth of arms from the U.S., \$7.5 billion from France, \$2.5 billion from the PRC, \$2.1 billion from the U.K., \$30 million from Italy, and \$1,600 million from other countries.³⁴

ACDA changed its way of reporting arms sales by source in 1992, According to this reporting, Saudi Arabia imported a total of \$23,040 million worth of arms during 1985-1989, including \$5,000 million from the U.S., \$7,000 million from France, \$7,700 million from the UK, \$2,500 million from the PRC, \$40 million from West Germany, \$250 million from other European countries, \$140 million from other East Asian states, \$390 million from Latin American, and \$ 20 million from other countries in the world.³⁵

Other sources indicates that Saudi Arabia took delivery on \$48.1 billion worth of arms during 1983-1989, and purchased 14.1% of all Third World arms sales agreements during 1982-1989.³⁶ If one looks at total transfers to the developing world, Saudi Arabia was the largest arms importer during 1984-1987 (\$27.5 billion) and the largest during 1988-1991 (\$26.8 billion). It must be stressed, however, that the figures for Saudi Arabia include substantial amounts of services, and the value of actual weapons transfers is around half the total reported.

During 1990, Saudi Arabia took delivery on \$6,749 million worth of arms and ordered \$18,649 million more. It took delivery on \$7.1 billion worth of arms in 1991, and ordered

³² Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, Table II.

³³ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1985, Washington, GPO, 1985, pp. 133-134.

³⁴ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 117-118.

³⁵ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

³⁶ See "High Costs of the Persian Gulf War," Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1987, Washington, GPO, 1988, pp. 21-23, and Richard F. Grimmett, Trends in Conventional Arms Transfers to the Third World by Major Supplier, 1982-1989, Congressional Research Service, Library of Congress, Washington, 90-298F, June 19, 1990.

\$7.8 billion more, and it took delivery on \$4.5 billion worth of arms in 1991, and ordered \$4.5 billion more. In 1992, Saudi Arabia ranked as the largest Third World state in terms of deliveries and second largest in new agreements. In this case, however, large amounts of the transfers consisted on in kind support and arms transferred to the UN Coalition during Operation Desert Storm. For the period from 1988-1992, Saudi Arabia received a total of \$25.5 billion in arms deliveries. Its principal suppliers were the four major West European nations (\$13.3 billion), and the United States (\$8.8 billion). During that same period, Saudi Arabia ordered a total of \$35.9 billion worth of new arms. Its principal suppliers of new arms were the United States (\$24.8 billion) and the four major West European nations (\$8 billion).³⁷

These dollar figures conceal major qualitative changes in Saudi arms imports since the mid-1980s, and which have been further accelerated since the Gulf War. Until the mid-1980s, Saudi Arabia concentrated upon building up its military infrastructure and basic military capabilities. Since the mid-1980s, its imports have shifted to include a steadily increasing number of first line weapons systems. If Saudi Arabia imported relatively few arms per arms import dollar in the past, and concentrated on building the foundation for modern forces, it now often buys more arms than it can readily absorb -- using new arms deliveries to try to force the pace of military expansion even if this means considerable turbulence, shortages in skilled personnel, and overall undermanning in Saudi forces.

Many of Saudi Arabia's most advanced weapons systems have come from the United States, although Britain, France, and other countries have been major suppliers. Saudi Arabia has shown that it will change suppliers if it is denied the weapons it wants. At the same time, it has shifted suppliers to suit its political goals, or to offer major importing nations a partial offset for their expenditures on Saudi oil.

There has also been a continuing tension over arms sales between Saudi Arabia and the United States. On the one hand, Saudi Arabia is dependent on U.S. support and power projection forces in any major emergency, and military relations are generally close. On the other hand, it feels American arms sales and advisory services are often limited or denied because of U.S. ties to Israel, and many in the royal family and Saudi society resent

³⁷ Richard F. Grimmett, Conventional Arms Transfers to the Third World, 1983-1990, Washington, Congressional Research Service, CRS-9 1-578F, August 2, 1991, p. 69; Conventional Arms Transfers to the Third World, 1984-1991, Washington, Congressional Research Service, CRS-92-577F, July 20, 1991, p. 60 and 67, and Conventional Arms Transfers to the Third World, 1985-1992, Washington, Congressional Research Service, CRS-93-656F, July 19, 1993, p. 70 and 67..

the denial of arms sales and continuing pro-Israeli posturing and attacks by members of the U.S. Congress.

Saudi Military Manpower

The key military problem Saudi Arabia has faced since it decided to create modern military forces in the 1960s, and will continue to face until well after the year 2000, is manpower. Saudi Arabia used to exaggerate its total population because it felt a higher number gave it strategic and political value in dealing with the rest of the Arab world. In 1992, however, it completed a more accurate census which estimated its population at 16.9 million, with a birth rate of 3.5% to 3.8% per year. The latest CIA estimate is 17.1 million, which is close to this total, but which some experts feel is still too high. The IISS, for example, estimates the total population at 10.6 million.³⁸

The CIA estimates the birth rate be 3.3%. The population is estimated to be about 90% Arab and 10% Afro-Asian. Virtually all Afro-Asians are foreign workers whose residence is dependent on work permits. The country is theoretically 100% Muslim, predominately Sunni and of the Wahabi sect, although about 6-8% may be Shi'ite -- largely in the Eastern Provinces.³⁹

The labor force is estimated to be about 5.0 million, of which roughly 60% is still foreign. Out of the native labor force, 34% is working for the government, 28% is working in the industry and petroleum sector, 22% is working in services, and 16% is working in agriculture. The CIA estimates that about 5.6 million males in the work force between the ages of 15 and 49 are fit for military service, but many are foreign workers. It estimates that about 133,300 men a year reach age 17, when they become eligible for military service.⁴⁰ The IISS estimates there are 585,000 males between the ages of 13 and 17, 473,400 between the ages of 18 and 22, and 841,400 between the ages of 23 and 32.⁴¹

While Saudi figures sometimes exaggerate the nation's population and military manpower for political purposes, Saudi Arabia now seems to have a total native population of 7-9 million. It only, however, has about 76,500-95,000 full time uniformed actives in its armed forces, 35,000 to 50,000 more full-time actives in its paramilitary Royal Guards and National Guard, 8,500 in its Frontier Forces, 6,000 in its Coast Guard, and up to 1,000 more men in its Special security Forces and other special units. These figures would

³⁸ IISS, Military Balance, 1992-1993, p. 120; New York Times, December 16, 1992, p. A-8.

³⁹ Adapted largely from the CIA, World Factbook, 1992, pp. 300-301. The Saudi census only claimed a population of 7 million in 1977.

⁴⁰ CIA, World Factbook, 1992, pp. 300-301.

⁴¹ IISS, Military Balance, 1991-1992, p. 117.

produce a maximum of about 150,000 men, many of which are part time or have assignments with little military capability except in internal security missions.

This Saudi manpower must compete with an Iranian population of roughly 60 million, and peak military manning levels of over one million men, and an Iraqi population of roughly 18 million, and peak military manning levels of nearly one million men. It compares with a Syrian population of about 14 million and 420,000 men under arms, and with a total Yemeni population in the Yemens of about 10 million, with about 72,000 under arms.⁴² Equally important, Saudi military manpower is limited by continuing tribal and regional rivalries. Saudi Arabia is very cautious about recruiting from the regions -- like the Hijaz -- that opposed the Saudi conquest in the 1920s and 1930s, or rival tribes like the Bani Sadr.

By Western standards, it would take about 100,000-150,000 men to adequately man the regular part of the Kingdom's force structure, and Saudi Arabia is short of the skilled career manpower necessary to meet its present force expansion plans. Over the years, Saudi Arabia has tried to compensate for these problems by :

- o A heavy dependence on foreign support and technicians (now over 14,000 personnel);
- o Using small elements of foreign forces in key specialty and technical areas--such as combat engineers-- to "fill in" the gaps in Saudi land forces. It formerly had some 10,000 Pakistani forces to fill out one brigade (the 12th Armored Brigade) at Tabuk. These Pakistani have not been replaced, although possible contingency arrangements may exist with Egypt.⁴³
- o Use of French and British internal security experts;
- o Selective undermanning while it builds its training and manpower base;
- o Concentrating on building a fully effective air force as a first line deterrent and defense; and,
- o A *de facto* reliance on over-the-horizon reinforcement by the U.S., France, Egypt, Syria, or some other power to deal with high level or enduring conflicts.

These are all intelligent methods of reducing the Saudi manpower problem, but they still leave many gaps and weaknesses in Saudi forces. The limitations in Saudi military manpower are also forced on Saudi planners by Saudi demographics, by civil competition

⁴² Unless otherwise specified, the military data quoted here are taken from the relevant country sections of the IISS, Military Balance, 1987-1988; CIA, The World Factbook, 1986; and Ze'ev Eytan, The Middle East Military Balance, 1986, Jaffee Center for Strategic Studies, Tel Aviv University, Tel Aviv, 1987.)

⁴³ These Pakistani forces will the Kingdom in 1988 and 1989.

for skilled manpower--which still makes it extremely hard to retain army personnel in spite of the contraction of the Saudi economy--and by the need to maintain a National Guard with up to 35,000 full time actives for internal political and security reasons.⁴⁴

Some of these manpower constraints, however, will change during the next decade. Saudi Arabia's high population growth rate will sharply increase the number of eligible men, and military service is becoming more popular. It pays about twice as much for new entrants as comparable civilian jobs, and the expectations of young Saudis are much more modest than they were in the 1970s and 1980s. The Gulf War marked a watershed in this respect. Saudi Arabia called for volunteers for the first time, expecting some 25,000 volunteers at most. It got 200,000 to 250,000. This showed for the first time that Saudi Arabia probably could expand its manpower significantly in future years.

Nevertheless, there is no way that Saudi Arabia can hope to compete with Iran, Iraq, or Syria in sheer manpower or in the size of its land forces. While Saudi officials have talked about conscription for more than a decade, Saudi Arabia's religious establishment opposes this as a violation of Islamic law, and any full scale program would have unacceptable political and economic costs. Although Saudi Arabia's total population is uncertain, it is reasonably clear that the Kingdom now has a maximum of about 1.8 million males eligible for military service.⁴⁵

Saudi Arabia can only hope to reach and maintain a technical edge over regional threats by concentrating on the modernization and Saudization of its combat arms while continuing to rely on foreign support. The Kingdom must allocate virtually all of its increasing output of skilled military manpower to operational forces and command roles, and it cannot hope to replace Western technical support. It has learned from the Gulf War, however, that it may be able to organize its land units to accept volunteers into support units with functions similar to their civil jobs, and shift regular military personnel to combat functions. This is now being studied as a possible alternative to conscription.⁴⁶ If conscription is adopted, it is more likely to be a selective effort that will provide a limit

⁴⁴ Estimates of active manning in the National Guard differ sharply. The most recent IISS estimate is 35,000 actives, and 20,000 tribal levies. The author's estimate is 15,000 full time actives, 15,000 semi-active reserves, and 15,000 tribal levies.

⁴⁵ These figures are the author's estimate. The CIA estimates a total manpower pool of 6,663,217 military age males between 15 and 49, and 3,724,610 fit for military service. It estimates 165,167 reach age 17 annually. (CIA, *The World Factbook, 1991*, pp. 273-274. The IISS estimates a total population of 10,600,000, with 473,000 males between the ages of 17 and 22, and 841,000 between the ages of 23 and 32. The IISS estimates are based on British figures which seem far less politicized than the CIA data, which seem to be deliberately adjusted to please Saudi Arabia.

⁴⁶ *Jane's Defense Weekly*, May 15, 1985; *New York Times*, April 28, 1985.

increase active manning levels, than a broad popular draft that results in a major increase in Saudi total manning.

Equally significant, the Kingdom has already drawn on most of the tribal and regional groupings it can count upon for political support. The rise of Islamic fundamentalism among the poorer and more tribal Saudis, coupled to long standing hostility among a number of tribes and the Hijaz, places additional serious limits on the Saudi recruiting base and the groups it can conscript.

It is difficult to make any estimate of the degree to which Saudi Arabia currently offsets its manpower shortages by the use of foreign troops and advisors. Further, the separation between formal military advisors and Western contractors is often more a matter of clothing than function. There are significant numbers of U.S., British, and French military advisors, and at least several thousand Western contract personnel, many handling critical service and support functions for Saudi Arabia's most modern weapons. There are small cadres from Brazil and other arms sellers, and at least several hundred PRC personnel servicing and operating Saudi Arabia's CSS-2 long range surface-to-surface missiles. There no longer seem to be whole Pakistani formations in Saudi Arabia, but there may still be over 1,000 Pakistani troops, some operating at the battalion level in the army.⁴⁷

The Saudi Army

Saudi Arabia's manpower problems are most severe in the case of its army. The Saudi Army only had a total of 38,000-43,000 men in late 1988, with another 56,000 full and part time men in the National Guard. In spite of crash efforts to build up the army's manpower during the Gulf War, efforts which sometimes raised combat unit manning by as much as 20%, the army's force structure was still undermanned by about 20-35%, and many individual units had worse manning levels.

In 1993, the army seems to have expanded to around 60,000-70,000 men, although some Saudi claims put this manpower substantially higher. This expansion, however, has had mixed success. Saudi Arabia still cannot man its present strength of eight-nine independent brigades: Three armored, four mechanized, one infantry, and one airborne brigades, and one Royal Guards regiment. It is experiencing difficulties in expanding its combat support forces to man to five independent artillery brigades and creating an aviation command. Even if it could fully man these forces, Saudi Arabia would have forces equivalent to little more than three full divisions at a time when Iraq and Iran can both

⁴⁷ The data available to the author were so much in conflict that it proved impossible to provide even a useful range.

mobilize to up to ten times this strength. The army also has significant problems in recruiting and training skilled technicians and NCOs.

Yet, even by Northern Gulf standards, Saudi Arabia's existing force structure and equipment pool requires a minimum of 90,000-110,000 men. While the Saudi Army may be able to recruit these numbers, in the near term, it will do so only at the short term cost of manpower quality. It will be hard pressed to build up to more than 120,000 fully trained and combat capable men before the late-1990s. In the interim, it will experience turbulence and manpower allocation problems, and has limited ability to sustain casualties. It will also remain heavily dependent on contractor support for many service support, maintenance, and logistics functions for the indefinite future.

This raises serious doubts about the kind of force expansion that is currently being debated in Saudi Arabia. Some reports indicate that a secret Saudi-U.S. Joint Security Review, called the Malcor Report, was carried out after the Gulf War in August, 1991. Some sources indicate the plan called for a three corps Saudi force of seven divisions by the year 2000. Other reports indicate that it called for a nine division force of 90,000 men, and the overall force expansion shown in Table VII-2.⁴⁸

It seems likely that Saudi goals are more modest. According to Saudi sources in late 1992, the government would like to create at least one more armored, and mechanized brigade by the mid-1990s, and expand to a total of five divisions by the year 2000. This change would involve a conversion from a brigade-oriented command structure to a division-oriented structure. It would provide three divisions in the north to defend Saudi Arabia's Gulf Coast and border with Iraq. Another division near al-Kharj or the capital, and a fifth division in the south.

These five divisions would still be relatively lightly manned, and total combat unit manning would expand from about 37,500 today to around 70,000. There might also be two to three additional light divisions which would depend on additional manpower or "fillers" from the National Guard. Saudi support forces would be limited in peacetime, but would use temporary duty civilians in their support forces in a major crisis. Such a force expansion plan is considerably more realistic than the Malcor plan, but would still present a major challenge in terms of available manpower.

⁴⁸ Major General Dennis Malcor was sent to Saudi Arabia to survey its military requirements after the Gulf War. Washington Post, March 15, 1992, p. A-35; New York Times, October 15, 1991, p. A-1; Jane's Defense Weekly, December 14, 1991, p. 1175.

Table VII-2
Possible Saudi Force Expansion Plans for the Year 2000

| <u>Item</u> | <u>Mid-1991</u> | <u>On Order</u> | <u>Total By 1995</u> | <u>Goal for the Year 2000</u> |
|------------------------|-----------------|-----------------|----------------------|-------------------------------|
| M-1A2 Tanks | 0 | 465 | 465 | 700 |
| M-2 Bradley AFVs | 0 | 200 | 200 | 550 |
| Tornado Jets | 72 | 48 | 120 | ? |
| F-15 Jets | 60 | 38 | 98 | 132 |
| Hawk Jets | 29 | 60 | 89 | ? |
| Black Hawk Helicopters | 12 | 88 | 100 | ? |
| Patriot Batteries | 8 | 14 | 22 | 26 |
| Modern Mine Vessels | 4 | 1 | 5 | 11 |

Source: Adapted from a working paper by Ted Atkenson of the CSIS

Regardless of what estimate of Saudi plans or goals is correct, any real-world expansion of Saudi forces will still leave Saudi Arabia unable to defend its territory from an all-out attack by Iraq. It will also leave Saudi Arabia with major problems in concentrating its forces to aid Kuwait or deal with any sudden Iranian thrust across the Gulf to achieve a limited objective like the seizure of Bahrain.

Further, the threat from the northern Gulf is only part of the threat that Saudi Arabia must deal with. The Saudi Army must defend a territory roughly the size of the U.S. east of the Mississippi. It must provide forces to defend its Western border area, to deal with a continuing low level border conflict with Yemen, and to provide at least some forces along its Red Sea coast.

As a result, the Saudi Army is normally scattered over much of the Kingdom. It has brigade-sized casernes at Khamis Mushayt and Shahrurah in the southeast, a garrison at Najran and Jubail in the south, and brigade sized forces at King Khalid City in the north, Tabuk in the West, and Dammam in the East. The Gulf Cooperation Council Peninsular Shield Force is located at King Khalid City, which is near the border with Kuwait and Iraq. These deployments are partly a matter of internal security. Saudi forces are usually kept far away from key cities and political centers of power, but they are primarily a result of the fact that Saudi Army cannot leave any of its border areas undefended.

These manpower and expansion problems are compounded by the Saudi Army's need to operate a complex mix of different equipment from many different nations. The diversification of Saudi Arabia's sources of army equipment has greatly complicated its life-cycle costs, and training and support burden. These problems have been further increased by the fact Saudi Arabia has often made purchases from its major oil customers that do not serve the army's needs, and has been unable to obtain a consistent supply of equipment from the U.S. because of internal U.S. domestic politics.

Much of the equipment the Saudi Army has purchased has required modification or changes to its original technical and logistic support plan before it could be operated in large numbers, and some items still present major servicing problems. These problems have then been compounded by the need to support so many different types of equipment in distant border areas, by the erratic quality of contractor support, and by an overly ambitious effort to create a modern logistical system that has lacked proper Saudi and U.S. advisory management.

These problems are reflected in the equipment holdings and modernization plans of the Saudi Army. Saudi Arabia had about 740-750 main battle tanks in the fall of 1992, and about 300 tank transporters. These tanks included 450 M-60A3s, and 290-300 French-

made AMX-30s. Part of this tank force meets Saudi needs. Saudi Arabia found the M-60A3 to be a significant advance over the M-60A1 during the Gulf War, and converted all of its M-60A1s to the M-60A3. The M-60A3s have thermal sights, modern fire-control computers, laser range finders, and engine and air intake improvements, although they do present some operational problems -- the crew compartment cannot be cooled effectively and the M-60s can develop internal temperatures of well over 120 degrees. Much of this tank force is also relatively new. Saudi Arabia bought 150 M-60A3s, along with 15,000 depleted uranium 105mm anti-tank rounds, as part of an emergency order in August, 1990.⁴⁹

The M-60A3 is capable of engaging any tank currently deployed in the region, although it lacks a decisive technical superiority over the T-72 and the other first line tanks in potential threat forces. It is likely to remain in the Saudi force structure through the year 2000. Saudi Arabia's inventory of 290-300 French AMX-30s is a different story.

The AMX-30 lacks the armor, firepower, and operational availability to be kept in service against threats armed with T-62s, T-72s, and other modern tanks like the T-80, M-60, Khalid, Merkava, Chieftain, and Challenger. While the adoption of newer anti-armor round technology has made up for the lack of penetrating power in the Obus G rounds that France originally sold the Saudi Army, the AMX-30's fire control and range-finding capability is inadequate to help Saudi tank crews make up for their lack of experience, and the AMX-30 lacks the power, cooling, and filtration for desert combat. Saudi Arabia had needed to phase the AMX-30s out of its force structure four nearly half a decade, but is unlikely to do so before the late 1990s.

Saudi Arabia has long recognized the need for more modern tanks, and sought improved armor beginning in the mid-1980s. Its goal was to develop a force using the M-1 tank. This offered not only one of the world's most effective weapons systems, but one that could be fully supported and upgrade over time by the U.S. Army, and that would improve U.S. Army rapid deployment capabilities. Saudi Arabia face major uncertainties, however, over whether the U.S. Congress would permit such sales.

As a result, it examined alternative suppliers -- including Brazilian, British, French, and German tanks. It announced in February, 1988 that it had short-listed the M-1A1 and EE-T1 Osoro for some form of coproduction in a purchase that might involve some 315 vehicles and a \$1 billion contract. One issue delaying a decision to buy the M-1 was

⁴⁹ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4.

whether the U.S. was willing to sell the M-1A2 version of the M-1, with a 120mm gun. Another was the fact that the Brazilian Osoro existed only in prototype form and production could not begin until 1990 at the earliest.

Saudi Arabia eventually decided to buy 315 M-1A2s in September, 1989, although the details of sale took roughly a year to complete and some debate over the sale still existed in May, 1992 -- because the U.S. army had cut back on its own orders of the M-1A2.⁵⁰ The reasons for the Saudi decision, as well as the complexity and sophistication of modern tanks, becomes clear from an examination of the M-1A2's performance characteristics. The Saudis bought a version of the 68.5 ton M-1 with a 120mm gun, advanced armor, and thermal sights. The M-1A2 has line-of-sight gun stabilization which provides full shoot-on-the move capability. A digital ballistic computer provides quick aiming correction based on automatic and manual inputs such as wind velocity, vehicle cant, and gun tube deflection. A laser range finder provides target data for the ballistic computer. The thermal imaging sight improves target acquisition during both day and night at ranges in excess of 3,000 meters.

A 1,500 horse power engine, automatic transmission, and two final drives give the M-1A2 a top speed of 43 mph on hard surface roads. An advanced torsion bar and long-stroke rotary shock absorber suspension give it cross country speeds of up to 33 MPH. Crew survivability is enhanced by the compartmented storage of fuel and ammunition, and an automatic fire extinguisher system. The tank has a comparatively low profile and noise signature, and has external smoke generators and grenade launchers for rapid concealment. Other key features of all M-1 tanks include:⁵¹

- o Appliqué armor added to protect it against future Soviet-made weapons systems, and potential upgradability to active armor.
- o A commander's independent thermal viewer to allow him to acquire targets in the dark or haze while the gunner is engaging other targets, and had off such targets independently to the gunner.
- o An improved commander's weapon station with excellent visibility and ballistic protection, an enlarged hatch, and protection against directed energy weapons.
- o Precise position navigation and use of the satellite global positioning system (GPS).

⁵⁰ Inside the Army, April 6, 1992, p. 1; Inside the Pentagon, April 9, 1992, p. 2.

⁵¹ Department of Defense, "Sale of Abrams Tanks to Saudi Arabia", Background Information, 1 November, 1989.

- o A carbon dioxide laser range finder that allows all weather target engagement, reduces the risk of blinding friendly forces, and which allows rapid enough calculation to engage helicopters.
- o A systems integration package of features to reduce work load and crew fatigue.

Saudi Arabia also planned to buy modifications of the M-1A2 to tailor it to desert warfare. These included use of a Jaguar radio to improve inter-tank communication, instead of a single channel ground/air system, a driver's thermal viewer to improve visibility through smoke and dust, a two-kilowatt external auxiliary power unit, countermine equipment, hardware and software capable of displaying English and Arabic text, and Arabic labels.

This first M-1A2 sale was part of a \$3.1 billion package that included 30 M-88A1 tank recovery vehicles, 175 M-998 utility trucks, 224 heavy tactical trucks, 29 heavy equipment transporters, 268 five ton trucks, spares and support equipment, logistics support, ammunition, facilities design and construction, training aids and devices, and U.S. military training services.⁵² The Congress approved the sale after it became clear that Israel did not view it as a threat.⁵³

Saudi Arabia made further M-1A2 tank purchases after Iraq's invasion of Kuwait. On September 27, 1990, it bought an armored vehicle package that included 150 M-1A2 tanks, 200 Bradley fight vehicles, 207 M-113 armored personnel carriers, 50 M-548 cargo carriers, 17 M-88A1 recovery vehicles, and 43 M-578 recovery vehicles. This order brought the total number of M-1A2s on order to 465 tanks, with delivery to begin in April, 1993, and take place over a three year period.

Saudi Arabia reaffirmed its commitment to this sale in late July 1992. Senior Saudi also sources indicated in September, 1992 that the Saudi Army would go ahead and buy enough M-1A2s to reach the total of 700. They indicated that Saudi Arabia planned to cap its total tank force at 1,200 tanks, with 700 M-1A2s and the rest M-60A3s. Saudi Arabia also bought advanced gunnery trainers like the EEC M-1A2 gun trainer, and began to train crews at the U.S. Army armored warfare training center at Fort Knox. This training project is called Project Sword. It will cost \$16.7 million, and the first of the 178 Saudi troops that will train other Saudis to use the M-1A2 in Saudi Arabia arrived in the U.S. early in 1993.

⁵² Department of Defense fax, July 18, 1990; Defense Week, March 12, 1990, p. 3.

⁵³ Defense News, November 13, 1989, p. 3, March 12, 1990, p. 3; Washington Post, October 12, 1989, p. A-9; October 16, 1989, p. A-17; Department of Defense Background Paper, November 1, 1989; Insight, September 25, 1989, p. 34; Philadelphia Inquirer, September 30, 1989, p. 5-A; New York Times, September 28, 1989, p. A-1;

These Saudi troops will also receive language training in San Antonio and exercise training at the U.S. Army proving ground at Aberdeen.⁵⁴

Both Britain and France, however, continue to compete for the sale of the remaining 235 tanks.⁵⁵ There is still a debate over (a) exactly how many M-1A2s Saudi Arabia will buy, (b) whether it needs and can afford a second type of modern tank, and (c) whether it will buy surplus tanks that will provide de facto prepositioning for U.S. forces. Saudi Arabia is considering an order for 235 more M-1A2s, but a number of Saudi and outside experts wonder whether Saudi Arabia can absorb this many tanks, since it would bring Saudi armor to a total strength of 650 M-1A2s, 520 M-60A3s, and whatever portion of its AMX-30s it kept in service.⁵⁶

At the same time, the Saudi Army is concerned about relying on the M-1A2 because the cancellation of tank orders for the U.S. Army makes it uncertain whether the U.S. will be able to provide the supporting infrastructure and modernization support Saudi Arabia needs.⁵⁷ All of these issues are likely to be solved in a traditional Saudi manner: Obliquely, slowly, and with shifting compromises that suit as many different positions as possible.

The other armored fighting vehicles in the Saudi Army offer no such prospect for standardization or orderly modernization. They present a nightmare both for the Saudi army and for the military analyst. Saudi Arabia has bought an extremely wide variety of types and sub-types. Many are highly specialized, and many seem to represent political efforts to give given foreign suppliers some share of the Saudi market, regardless of military need. Further, it is not possible to separate some purchases for the Army from purchases for the National Guard, Frontier Force, and other paramilitary forces. The end result is that no data base seems accurate, although it is clear that the Saudi army has some many different types of other armored vehicles that this has becoming a major training, maintenance, logistic, maneuver, and readiness problem.

In 1993, the Saudi Army's holdings of armored infantry fighting and command vehicles included 90 M-2 Bradleys, 150 M-577A1s, 170 AMX-10s, and 200 Camillinos. It had

⁵⁴ Louisville Courier Journal, November 6, 1992, p. B-3; Defense News, June 21, 1993, p. 14; Jane's Defense Weekly, February 20, 1993, p. 8.

⁵⁵ Jane's Defense Weekly, February 6, 1988, p. 191, March 7, 1992, July 25, 1992, p. 18, August 15, 1992, p. 5; Richard F. Grimmit, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4; Defense Daily, February 14, 1992, p. 251; Defense News, March 30, 1992, p. 6.

⁵⁶ Defense News, March 30, 1992, p. 6; Defense Daily, February 14, 1992, p. 251; Jane's Defense Weekly, February 6, 1988, p. 191, March 7, 1992; Inside the Army, April 6, 1992, p. 1; Inside the Pentagon, April 9, 1992, p. 2.

⁵⁷ Jane's Defense Weekly, February 6, 1988, p. 191, March 7, 1992; Defense Daily, February 14, 1992, p. 251; Defense News, March 30, 1992, p. 6.

390-420 AML-60, AML-90, and AML-245 reconnaissance vehicles. It had 430-550 AMX-10P and 250 VAB/VCI mechanized infantry combat vehicles, command vehicles and special purpose vehicles. It had 950-850 M-113A1 and M-113A2, and other U.S. armored personnel carriers. It also had 30 EE-11 Brazilian Urtu, 110 German UR-416, 120 Spanish BMR-600 and 270-290 Panhard M-3/VTT armored personnel carriers. Saudi Arabia had 250 to 300 additional armored mortar carriers, including M-106A1 and M-125s. Unlike most Middle Eastern armies, the Saudi Army was fully equipped with armored support vehicles. It had large numbers of French and U.S.-made armored recovery vehicles, armored bridging units, and large numbers of special purpose armored vehicles.⁵⁸

Saudi Arabia also had 110 more Bradley M-2A2 Armored Fighting Vehicles in delivery entering service as a result of orders it had placed in 1988, plus orders for 200 M-2A2s, 200 M-113 armored personnel carriers, 50 M-548 cargo carriers, 17 M-88A1 recovery vehicles, and 43 M-578 recovery vehicles in the process of delivery, as the result of its orders during the Gulf War.⁵⁹

The purchase of the M-2 will be of major future importance because Saudi Arabia's buy of the M-1A2 and M-2 will give it a much higher degree of standardization and common support with U.S. Army power projection forces, and because the M-2A2's speed, protection, and firepower allow it to keep pace with Saudi tanks and outmatch the Soviet armored fighting vehicles in most potential threat armies -- many of which have better protection and firepower than many of the armored vehicles in service with Saudi forces. The M-2A2 is also heavily armed and are equipped with TOW-2 missiles and 25mm cannon, and is air conditioned, which provides both protection against gas warfare and allows extended operation at desert heats.

Saudi Arabia may eventually order a total of over 550 M-2A2s, and Saudi sources indicated in September, 1992, that Saudi Arabia might buy 700 M-2A2s and then standardize on the M-113A1 for the rest of Saudi Arabia's armored fighting vehicles. Like the M-1A2 buy, such standardization would both improve Saudi army capabilities, and provide a high degree of interoperability and standardization with U.S. Army forces.

⁵⁸ IISS, Military Balance, DMS computer data base, interviews in Saudi Arabia in February, 1991, discussions with Saudi experts in December, 1990, and Defense News, February 22, 1988, p. 3. These figures are based largely Saudi data obtained in March, 1991 and February 1993, and differ significantly from IISS and most Western data bases.

⁵⁹ The first 200 M-2s were produced at a rate of 2 in FY89, 98 in FY90, and 100 in FY91. Jane's Defense Weekly, September 9, 1989, p. 452; Wall Street Journal, June 2, 1988, p. 56.; Aviation Week, June 17, 1991, p. 129.

The purchase of the M-2A2 will not, however, reduce Saudi Arabia's problems in training or solve all its problems in supporting so many types of vehicles which are dependent for parts and technical support on so many different countries. Saudi Arabia also scarcely reached a firm decision on its future purchases. It has 36 German Fuchsia chemical defense vehicles and additional French armored vehicles on order, and is examining possible purchases of other armored vehicles from Brazil, Britain, and the FRG.

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The Saudi Army had an excellent mix of small arms, light weaponry, and anti-tank weapons in 1992. These included massive stocks of mobile, crew portable, and man-portable TOW, HOT, and Dragon anti-tank guided missiles. Some 200 TOW launchers were mounted on VCC-1 armored fighting vehicles, 300 were mounted on M-113A1s or other U.S. supplied armored vehicles, and 200 were mounted on VCC-1 armored vehicles. It had 90 HOT launchers mounted on AMX-10P armored fighting vehicles.

There were large numbers of TOW crew portable and Dragon man portable anti-tank guided weapons systems. It also had 400 Carl Gustav rocket launchers, 400 M-20 3.5", thousands of M-72 LAW, and extensive numbers of 75mm, 84mm, 90mm and 106mm rocket launchers and recoilless rifles. Saudi Arabia ordered 4,460 TOW-2 missiles in April, 1987, and 150 more TOW IIA missile launchers with night vision sights and support equipment on September 27, 1990.⁶¹ It will be well equipped with missiles that can kill T-72A, T-72M1, and other modern tanks. The Saudi Army ordered French Apilas anti-tank weapons in 1991.

Saudi proficiency in using these anti-tank weapons is uncertain. The level of crew and operator training is reasonable, but often seems to lack consistency and realism. The units equipped with anti-tank weapons in armored vehicles seem to lack maneuver and combined arms training. Crews and men using older weapons are often less ready than those with the latest weapons, and units often lack aggressiveness in employing anti-tank weapons in exercises.

By 1992, the Saudi Army had acquired large numbers of modern artillery weapons, including 70-80 ASTROS II multiple rocket launchers, and 110-120 M-109A1/A2 and 65 GCT 155mm self-propelled howitzers. It had 24 Model 56 and 90-100 M-101/M-102 105mm towed howitzers, 50-70 FH-70 and 100-110 M-198 155mm towed howitzers, 5-10

⁶⁰ DMS computer data base, interviews in Saudi Arabia in February, 1991, discussions with Saudi experts in December, 1990, and *Defense News*, February 22, 1988, p. 3.

⁶¹ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4.

M-115 203mm towed howitzers, and some older towed weapons in storage. It had some 200 M-106 and M-125A1 120mm self propelled mortars and large numbers of towed mortars. These included over 400 120mm and 4.2" weapons, over 1,000 81mm weapons, and large numbers of light 60mm weapons.⁶²

The Saudi Army had more ASTROS II and M-198s on order, and was steadily acquiring better mobile fire-control and ammunition-supply equipment. Most importantly, it ordered 9 Multiple Launch Rocket Systems (MLRS), including vehicle mounted rocket launchers, 2,880 tactical rockets, 50 practice rockets, 9 MV-755A2 command post carriers, training and training equipment, and 20 AN/VRC-46 radio sets on September 27, 1990. The MLRS rocket uses a highly sophisticated warhead mixing anti-armor and anti-personnel bomblets. Each MLRS launcher is capable of inflicting more destruction on an area target or large maneuver target than a battalion of regular tube artillery or multiple rocket launchers and can do so at ranges in excess of 40 kilometers.⁶³

The Saudi Army, however, had only limited ability to use artillery in maneuver and combine arms warfare, to target effectively in counter-battery fire or at targets beyond visual range, and to shift and concentrate fires. Saudi Arabia has ordered new target acquisition radars -- such as the AN/PPS-15A, MSTAR, or Rasit 3190B -- to replace 1960 vintage systems, and is steadily improving its counterbattery radars and fire control systems.⁶⁴ Nevertheless, it seems likely that Saudi Army artillery capabilities will suffer from manpower quality, and some mobility and support, problems well into the late 1990s.

It is not easy to separate the Saudi Army's air defense assets from those in the Air Defense Force, and sources disagree over which force operates given systems. The Saudi Army seems to have had 18 anti-aircraft artillery batteries in 1992. Total Saudi holdings of short range air defenses included 45-50 Crotale radar guided missiles on tracked armored vehicles, 60-75 Shahine radar guided missiles on tracked armored vehicles, 700 Mistral, over 300 Stingers, and 570 obsolescent Redeye man portable surface-to-air missiles. Saudi Arabia had bought 50 Stinger launchers and 200 Stinger missiles on an emergency basis in August, 1990, and had additional Crotales and 700 launchers and 1,500 missiles for the French Mistral missile system on order.⁶⁵

⁶² Aviation Week, Jun 17, 1991, p. 129; Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, Aug 28, 1991, p. 4; IISS and JCSS military balances; DMS computer data base, interviews in Saudi Arabia in February, 1991, discussions with Saudi experts in Dec, 1990, and Defense News, Feb 22, 1988, p. 3.

⁶³ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, Aug 28, 1991, p. 4.

⁶⁴ Jane's Defense Weekly, Mar 11, 1989, p. 393.

⁶⁵ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, Aug 28, 1991, p. 4; Jane's Defense Weekly, Dec 17, 1988, p. 1546, Jun 25, 1989, p. 1296.

It also is not possible to separate the army's air defense gun holdings from those of Air Defense Force and National Guard, but the army seems to have had 10 M-42 40mm, 50-60 AMX-30SA 30mm self-propelled, and 50-60 Vulcan M-163 anti-aircraft guns. It also seems to have had an unknown number of Bofors L-60/L-70 40mm and Oerlikon 35mm towed, and possibly 15 M-117 90mm, towed anti-aircraft guns.

While this is a stronger mix of air defense assets than is possessed by many Arab armies, training and readiness levels are moderate to low. It is also a relatively limited air defense capability to deal with any major threat from the north. The Air Defense Corps is not a force that can easily support the army in mobile operations, and Saudi land forces will be heavily dependent on air power for air defense.

The Saudi Army's search for helicopter forces raises different issues. Much of the Saudi Army is now deployed nearly 600 miles from the Kingdom's main oil facilities in the Eastern Province, although a brigade has deployed to the new King Fahd military city in the Eastern Province, and the combat elements of a brigade deployed to the new Saudi Army base at King Khalid City near Hafr al-Batin in 1984. For the foreseeable future, the Saudi Army will still be dispersed so that much of its strength will be deployed near Saudi Arabia's borders with the angles located at Tabuk, Hafr al-Batin, and Sharurah-Khamis Mushayt. Helicopters offer a partial solution to these deployment problems. They can both provide rapid concentration of force and allow Saudi Arabia to make up for its lack of experience in large-scale maneuver.

At present, the Saudi Army has only limited helicopter strength, In 1993, it seems to have had 15 Bell 406CS attack helicopters, 11 S-70A1 Sikorsky Blackhawk transport helicopters, 6 SA-365N medical evacuation helicopters, and 6 UL-60 Blackhawk medical evacuation helicopters.⁶⁶ The Saudi Army has, however, long sought to increase these numbers and acquire a significant force of long range attack helicopters.

In the mid-1980s, the Saudi Army began studied plans for developing a sizable helicopter force by the mid 1990s. It initially considered buying 60-100 U.S. AH-64 attack helicopters, plus additions Blackhawk utility and support, and Chinook CH-47 transport helicopters from the U.S.

When it experienced political problems in obtaining these helicopters from the U.S., it considered purchasing purchase of 88 Black Hawk helicopters through Westland as a means of avoiding the political complications of ordering them through the U.S. Roughly

⁶⁶ Jane's Defense Weekly, July 22, 1989, p. 105; IISS, Military Balance, 1992-1993, pp. 120-121; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

80 of these Westlands were to be attack helicopters with TOW-2. The rest were to be configured for SAR missions. The order was divided into batches of 40 and 48 aircraft, but the Gulf War created conditions where Saudi Arabia could buy the AH-64 from the U.S., and it is now unclear how many helicopters the Saudi Army will actually order from Westland.⁶⁷

Saudi Arabia ordered 12 AH-64 Apache attack helicopters, 155 Hellfire missiles, 24 spare Hellfire launchers, six spare engines and associated equipment from the U.S. on September 27, 1990. At the time, it indicated an interest in buying 36 more AH-64s, for a total of 48, and that it was examining the purchase of more attack and support helicopters from the U.S., Italy, France, and a Franco-German consortium. The Saudi Army has not placed any additional orders of this kind, but in June, 1992, it bought 362 more Hellfire missiles, 3,500 Hydra-70 rockets, and 40 HMMWV vehicles and U.S. support services for its Apaches. It also bought eight S-70 Sikorsky medevac helicopters.⁶⁸

The AH-64s will begin to enter Saudi service this year. They are a potential force multiplier for the Saudi Army, and will also give the Saudi Army increased interoperability with the U.S. Army. At the same time, the Saudi Army will need extensive U.S. support to absorb such aircraft. It has some maintenance problems with its existing helicopter fleet, and modern combat helicopters require almost as much support and training as a light jet combat aircraft.

Saudi Arabia supports its combat equipment with excellent facilities, and logistic and support vehicles and equipment. The Saudi Army is one of the few forces in the developing world which is organized to provide as much sustainability as maneuver and firepower. As has been noted earlier, Saudi Arabia has made major purchases of support equipment along with the purchase of its M-1A2s and M-2A2s. It is improving its field support vehicle strength and ordered 10,000 support vehicles from the U.S. on September 27, 1990, including 1,200 High Mobility Multipurpose Wheeled Vehicles (HMMWVs). Saudi Arabia has long had U.S. Army support for its Ordnance Corps, logistic system, and technical services. This contract was renewed on June 1, 1992, and not only aids Saudi Arabia, but improves the ability of Saudi forces to support U.S. reinforcements and work with them on an interoperable basis.

⁶⁷ Aviation Week, April 2, 1990, p. 44; Jane's Defense Weekly, November 16, 1991, p. 927; Wall Street Journal, October 7, 1991, p. 16.

⁶⁸ Jane's Defense Weekly, December 14, 1991, p. 1175, June 13, 1992, p. 1013. Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4.

In summary, there is no doubt that Saudi Arabia can gradually expand its army. Nevertheless, the Saudi Army will face continuing problems in many areas. It will not have the manpower and training to properly operate its new major equipment orders as they are delivered. It is a garrison army that is heavily tied to operating near its peace time caserne, and which would experience serious problems in redeploying major combat forces unless it had extensive strategic warning. It would take the army a minimum of 7-10 days to redeploy a brigade to a new front or city.

Training has been a problem in the past, and will continue to be one in the future. U.S. advisors helped bring Saudi forces up to a level of readiness during the Gulf War that they had never before experienced, and gave them their first real experience with large scale unit and combined arms training. Many Saudi officers at all levels absorbed this training quickly, and the Saudi Army did well during Operation Desert Storm -- very well if its low pre-war readiness is considered. Many of the Saudi Army's training plans since the war, however, have not been executed, and maneuver training has been poor to mediocre.

Command and communications are too rigid and over-centralized. Combined arms training and maneuver training has been particularly weak, and promotion at senior command levels is often politicized. Professionalism, not politisation, is the key to the successful expansion of the Saudi army, as well as any other military force.

The Saudi National Guard

Saudi Arabia divides its land force manpower between the Army and the National Guard, and keeps roughly 25% of its full time military manpower in the Guard. The National Guard was used to deal with the Shi'ite uprising in the Eastern Province and the siege of the Grand Mosque in Mecca in 1979, and put down the Iranian riots in Mecca in 1987. It helped secure the Eastern Province during the Iran-Iraq War and Gulf War, and fought reasonably well during the battle of Khafji.

The National Guard is the successor of the Ikhwan and its successor the White Army. It is a tribal force forged out of those tribal elements loyal to the Saud family, It is also seen as a counterweight to any threat from the regular military forces, and is used a counterweight within the royal to Sudairi control over the regular armed forces. The National Guard is under the command of Prince Abdullah, who is descended from another wife of Abdul Aziz and is currently the Crown Prince.

Estimates of the current strength of the National Guard differ sharply. The most recent IISS estimate is 55,000 actives, and 20,000 tribal levies. A more realistic estimate may be

25,000-30,000 full time actives, 15,000 part time actives, and 15,000 tribal levies. The Guard is clearly divided into *firqa* (full-time tribal) forces and *liwa* (part-time irregular tribal levy) units. The training of even the *firqa* forces is somewhat erratic and varies by commander and unit. The men in its *liwa* (part-time irregular tribal levy) units often have little training and are usually a mix of retired military, descendants of the troops that fought with King Abd al-Aziz, or the sons or relatives of tribal leaders.

Sources differ regarding the current organization of the regular or *firqa* units. The IISS reports that the Guard is organized into two mechanized brigades with four combined arms battalions each, four infantry brigades, and one ceremonial cavalry squadron. Other sources indicate that it also has an engineer battalion, and a special security battalion, and one source indicates its strength is two mechanized brigades and two special forces units.⁶⁹

The *firqa* or full-time tribal forces have been organized into modern military formations over the last decade, with extensive help from the Vinnel Corporation in the U.S. They began to hold significant training exercises for their first 6,500-man Mechanized Brigade, the Imam Mohammed bin-Saud Brigade, during the early 1980s. They established a brigade sized presence, and a limited oil-field security force in the Eastern Province, and the Mohammed bin Saud brigade held its first major exercise in the desert about 250 miles west of Riyadh in early 1983. Units moved from as far away as the Eastern Province, and the key mechanized elements performed relatively well. While the Guard experienced problems in translating tribal into regular military discipline, and the force was well below its authorized manning level, its set piece maneuvers were relatively successful.

The National Guard then inaugurated its second mechanized "brigade" in a ceremony on March 14, 1985. This new unit was called the King Abd al-Aziz Brigade, and was formed after another relatively successful round of set piece exercises called "Al Aren" near Bisha. Prince Abdullah then spoke of expanding the Guard to 35,000 men, and succeeded in building up a force of three mechanized "brigades" by 1989.

The *firqa* forces helped secure the Eastern Province during the Iran-Iraq War, and was given special training and additional manning during the Gulf War. While the Guard was unable to deal with the initial Iraqi assault on Khafji, and required extensive U.S. air and artillery support during the battle to retake the city, it did fight reasonably well during the rest of battle of Khafji.

⁶⁹ IISS, Military Balance, 1992-1993, pp. 120-121; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

The *firqa* forces are now equipped with about 1,000-1,100 V-150 Commando wheeled armored fighting vehicles. These vehicles are part of a family with a number of different configurations and weapons systems, including anti-tank guided missile carriers, cannon turrets, and main guns. While estimates differ, they seem to include 100-120 V-150s configured as AIFVs, 20-30 with 90mm guns, 130-140 armored command vehicles, 70-80 81mm mortar carriers, 45-50 armored recovery vehicles, 30 special purpose vehicles, and 325-375 configured as APCs.

The Guard also has 40 M-102 105mm towed artillery weapons, 20-30 M-198 155mm howitzers, and 81mm mortars. It has large numbers of TOW anti-tank guided missiles, rocket launchers, and recoilless rifles, a limited number of helicopters, and 30 M-40 Vulcan 20mm anti-aircraft guns. At least 100 TOW fire units are mounted on V-150s.⁷⁰ It has 27 M-198 howitzers, 116 TOW launchers and 2,000 missiles, and HMMWV light transport vehicles on order.⁷¹

These changes in the Guard's full time forces are making them relatively high quality forces by Saudi standards, but the even the Guard's mechanized brigades lack the firepower, heavy armor, air defense, and maneuver capability to take on mechanized infantry or armored forces. The Guard's full time forces also lack the overall force structure and equipment lack the air mobility, specialized units, logistics, and maintenance capabilities to deal with a northern Gulf opponent, and its leadership is far better trained for paramilitary operations than real combat.

The *liwa* or tribal forces of the National Guard are grouped and deployed in five to seven regions, covering every critical urban and populated area in the country. They are useful in securing Saudi Arabia's key facilities in a way that limits the ability of the army to conduct a coup, and its leaders are carefully chosen for their loyalty to the regime. The Guard balances tribal factions to reduce the risk of fueding, and provides a means through which the royal family allocates funds to tribal and Bedouin leaders. The Guard helps key princes maintain close relations with the tribes, and is an extension of the majlis system as well as a means of maintaining internal security.

This organization makes the tribal portion of the Guard politically vital to ensuring the integration of Saudi Arabia's tribes into its society, but it does not mean it can adequately defend Saudi oil fields or other critical facilities against any well-trained or sophisticated

⁷⁰ Author's estimate based on interviews in Saudi Arabia; "Saudi National Guard Fact Sheet," DSAA I-01514, June 5, 1990; FMC data; DMS computer print outs; and the IISS and JCSS military balances.

⁷¹ Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159. Some reports indicate long range plans to buy 1,200 to 2,100 Pirhanas.

threat. The tribal levies have not evolved into a for internal security force whose main mission is internal security and ensuring the loyalty of Saudi Arabia's traditional tribes.⁷²

There have been reports that Prince Abdullah planned to build the Guard up to a strength of 11 full time brigades, and give it tanks, self-propelled artillery, and other heavy equipment. These reports seem exaggerated. Prince Abdullah evidently has asked the Guard's foreign advisors to study an expansion up to 80,000-100,000 regulars by the late 1990s to early 2000s. This could provide a force with 2 to 3 more mechanized brigades, 2 to 4 more infantry brigades, and a new mix of battalion sized formations for its part time forces.

Such an expansion would have to be very slow to be effective, and rely on the manpower available from loyal tribes. It would also mean sharper competition for manpower from the regular army. In spite of their recent progress, the *fiqra* forces remain dependent on outside contractors for service support, maintenance, and logistics. They require the support of the Saudi army and air force -- or of foreign military forces -- for any operation involving significant armor, maneuver operations, firepower, or sustainability in combat.

In any case, the National Guard also does not seem to be buying heavy armor. It renewed its training contract with the Vinnel Corporation in June, 1993, and is buying more light armor of the kind suited to the *firqa*.⁷³ Some sources indicate that the the Guard has bought 400 to 450 different versions of the Pirhana light armored vehicle. Other sources, which seem more reliable, indicate that the Saudi National Guard plans to buy 1,117 LAV-25s (light armored vehicles) from General Motors of Canada through the U.S. Army Tank Automotive Command (TACOM). This order would include ten different types of LAV-25s, including 141 anti-tank weapons vehicles with TOW, recovery vehicles, 74 mortar carriers, command, 417 APCs, ammunition carriers, ambulances, engineer vehicles, and 141 LAVs with 105mm guns. Some 325 would be armed with two man turrets with the 25mm McDonnell Douglas chain gun and thermal sights.⁷⁴

⁷² For an interesting Israeli view of the role of the National Guard in the mid-1980s, see Mordechai Abir, "Saudi Security and Military Endeavor", The Jerusalem Quarterly, No. 33, Fall 1984, pp. 79-94.

⁷³ Washington Times, June 19, 1993, p. C-5; New York Times, June 21, 1993, p. D-8; Department of Defense transmittal to Congress, 93-19, June 17, 1993. Vinnel is a subsidiary of BDM, and signed a \$819 million support contract running from January 1, 1994 to December 31, 1998. There were 214 U.S. government personnel and 1,500 contractor personnel supporting the Guard when the contract was signed..

⁷⁴ Jane's Defense Weekly, March 7, 1992, p. 388. Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

The Saudi Navy

The Saudi Navy has grown steadily during the last ten years, but still has only limited effectiveness in defensive roles. It has risen from active strength of 6,000 men in the mid-1980s, to strength of 8,000 to 10,000 men. In mid-1993, it had a strength of four Madina-class (F-2000) frigates, 4 Badr-class missile corvettes, 9 Al Siddiq-class guided missile ships, 3 Damman-class (German Jaguar) torpedo boats, 20 Naja 12 inshore fast craft, 17 Halter-type coastal patrol craft, four Safwa-class (ex-U.S. MSC-322 Bluebird) minewarfare ships, 2 Al Jawf-class (Sandown) mine hunters, 4 Afif-class LCU amphibious craft, 4 LCMs, two other amphibious craft, 2 Boraida-class (French Durance) support ships, 4 smaller support vessels, and large numbers of small patrol boats.

Various sources report different holdings for Saudi naval aviation. In mid-1993, it seems to have included 24 AS-365N Dauphin ASW and anti-ship missile helicopters (4 SAR and 20 with AS-15TT missiles), 3 Westland Sea King Marl 47 ASW helicopters, 6 AS-332B transport helicopters, and 6 AS332F combat helicopters with Exocet. One source reports 30 AS-532U Super Pumas, but this is not confirmed. The Saudi Navy also had a small 1,500 man marine force organized into an infantry regiment with two battalions, and equipped with 140 BMR-60Ps. Saudi Arabia currently plans to slowly expand its Marine forces to 2,400 men.⁷⁵

The Saudi Navy has completed the construction of two major, fully modern naval bases at Jiddah and Jubail. Its deployments are divided into a Western Fleet with its main facilities at Jiddah, and an Eastern Fleet with its main facilities at al Qatif/Jubail. The Navy also has facilities at Ras Tanura, Dammam, Yanbu, Ras al Ghar, and Ras al Mishab.⁷⁶ The Saudi Navy has taken delivery on all the major frigates and support craft it ordered earlier in the 1980s plus 24 missile-equipped helicopters.⁷⁷ It has been seeking to expand its manpower, and has been examining the possible purchase of mine vessels and mine hunting helicopters, submarines, and ASW aircraft.

The major deliveries under the U.S. phase of the Saudi naval expansion effort have been completed for several years. The U.S. delivered nine 478-ton patrol-gunboat, guided

⁷⁵ Based on Jane's Fighting Ships, IISS, Military Balance, 1992-1993, pp. 120-121; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

⁷⁶ Historical sources for the analysis of the Saudi Navy include James Bruce and Paul Bear, "Latest Arab Force Levels Operating in the Gulf," Jane's Defense Weekly, December 12, 1987, pp. 1360-1361; and various editions of the "Middle Eastern, North African, and South Asian Navies," sections of the March issue of Proceedings.

⁷⁷ These include 20 AS-365N Dauphin helicopters with AS-15TT air-to-surface missiles, and 4 search and rescue versions of the same helicopter.

missile (PGG) craft, armed with two twin Harpoon missile launchers, 1 76mm gun, and light AA weapons. It delivered four larger patrol-chaser missile (PCG) craft which the Saudis class as frigates and other sources class as corvette.⁷⁸ These four 1,039 ton vessels have two quad Harpoon missile launchers, 1 76mm gun, Vulcan and 20mm guns, and six 324mm torpedo tubes.

The U.S. delivered four MSC-322 class coastal mine sweepers, two large harbor tugs, two utility landing craft, and four LCM-6, 4 LCU-1610, and 4 LCM landing craft. Other U.S. deliveries included Harpoon missiles, Mark 46 torpedoes, and ammunition for the Saudi Navy's 76mm guns and other weapons. The Saudi Navy also took delivery on three Damman-class torpedo boats from the FRG, with four 533mm torpedo tubes each.

Saudi Arabia turned to France in the early 1980s as the major source of its naval ships and weapons because of dissatisfaction with the U.S. Navy advisory effort, and because it felt French ships were better suited to its mission requirements. The Saudi Navy signed its first major contract with France in 1980, in an effort to accelerate its modernization, obtain better support, and obtain more advanced ships than it could get from the U.S. It signed a modernization package costing \$3.4 billion, and then signed another contract that effectively made the French the primary future source of support and modernization for future Saudi orders. This follow-on French program, which began in 1982, is called Sawari (Mast) I. It has reached a minimum value of 14 billion French francs, or \$1.9 billion, and may have escalated in cost to \$3.2 billion.

France delivered the four missile-equipped 2,000-ton frigates by August 1986. These are 2,870 ton vessels when fully loaded. They have eight Otomat 2 missile launchers, eight Crotale surface-to-air missile launchers, 1 100mm gun, 4 twin Breda 35mm guns, 4 533mm torpedo tubes, and 1 SA-365F helicopter.⁷⁹ France has also delivered two modified Durance-class fuel supply/replenishment vessels (Boraida class), Otomat missiles for the frigates, 24 SA-365F Dauphin 2 helicopters (20 missile-equipped and 4 SAR-equipped), AS-15 missiles for the helicopters, and additional training services. The Otomat is the longest range anti-ship missile in Gulf service, with a range of 160 kilometers. Saudi crews trained in France to operate the vessels and helicopters.

The Saudi Navy then considered plans for the new Sawari II program, which could cost an additional \$1.6-2.12 billion. Prince Sultan first met with France's President

⁷⁸ They are Tacoma-class ASUWs, with 2X4 Harpoon launchers, and 2X3 ASTT (Mark 46 light weight torpedo launchers).

⁷⁹ These are French F-2000 class vessels with 4X533mm and 2X406mm ASTT torpedo launchers, one Dauphin helicopter, one 100mm gun, and 8 Otomat 2 missile launchers.

Francois Mitterrand and Defense Minister Charles Hernu to discuss this program in May, 1983. The program would have provided at least two more 2,000-ton frigates and possibly 4,000-ton frigates as well. It also included buying some mine sweeping helicopters and maritime patrol aircraft as the first step in the procurement of much larger forces including lift and troop-carrying helicopters, surveillance and intelligence equipment, and special warfare equipment.

While Saudi Arabia ordered 12 Super Pumas and 12 more patrol boats from France, it did not place major additional orders until 1990. It did not agree to the Sawari II program because of funding problems and because the Saudi's experienced growing problems with their French ships that were more severe than their earlier problems with American vessels. These maintenance and support problems were so serious in the late 1980s that Saudi Arabia even approached the U.S. to provide support for the French vessels.

Saudi Arabia signed a new support agreement with France in 1989, however, and during the Gulf War, Saudi Arabia placed a tentative order three F-3000 frigates. If these improved Lafayette class frigates are placed under contract, they will be delivered within three years of the order date. Each ship will displace 3,700 tons fully loaded, have 8 Exocet launchers, 16 Aster 15 or 1 octuple Crotale surface-to-air missile launcher, 1 100mm gun, 2 twin 30mm gun, 4 324 mm torpedo launchers, and 1 SA-365F helicopter. The Saudi Navy also ordered 6 additional Super Pumas in 1989, and decided to raise its order for French patrol boats to 20 ships.⁸⁰

Saudi Arabia's immediate plans to expand its naval forces now seem to center on its mine warfare units, although it is studying ways to expand its ASW capabilities in response to Iran's purchase of Soviet Kilo-class submarines. The Saudi Navy now has four obsolescent U.S. MSC-322 mine vessels (Addriyah class, and two modern British Sandown class MCC (Al Jawf class). It has one more Al-Jawf class mine hunter in construction, and options for three more.⁸¹

Saudi Arabia agreed to lease two Hunt-class mine vessels from Britain in July 1988, and placed an order for six to eight Vosper Sandown-class MCMVs, training by the Royal Navy, and new port facilities for mine warfare vessels from Ballast Nedam, as part of its \$18 billion al-Yamamah 2 program. Three of these ship orders, for what the Saudi call the

⁸⁰ London Financial Times, June 13, 1989, p. B-5; Wall Street Journal, June 7, 1988, p. 31; Jane's Defense Weekly, December 17, 1988, p. 1546, June 25, 1989, p. 1296; International Defense Review, 7/1989, p. 884.

⁸¹ Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

Al-Jawf class, have been funded. One ship is in service, the second ship was transferred to the Saudi Navy in February, 1993 and the third ship was launched the same week. The Al-Jawf class is a 500 ton ship with a crew of 40, built by Vosper-Thorneycroft, with a computerized ship positioning ship accurate to one meter, and a Plessey-Marconi variable depth sonar. It has Saudi enhancements including twin 30mm Emerson Electric guns and a Contraves fire control system, larger engines, and uprated Voith-Schneider propulsors.⁸²

The Saudi Navy may still be considering purchase of French-built Tripartite mine hunters, but the order for the Sandowns set an interesting precedent for standardization and interoperability, since Kuwait, Bahrain, Oman, Qatar, and the UAE are also actively examining orders of the Sandown or Tripartite mine warfare vessels.⁸³

Saudi Arabia has deferred plans to buy coastal submarines. Saudi Arabia sought to buy six to eight submarines during the 1980s, and discussed programs costing of up to \$1.5 billion to \$3 billion. Saudi Navy representatives visited several European manufacturers in 1986 and 1987 -- including the builders of the Walrus-class boats in the Netherlands, Vickers Type-2400 in the U.K., and ILK 209/2000 and Kockums 471 in West Germany. Saudi Arabia also considered an order for two AMD-BA Atlantique 2 (ANG) maritime patrol aircraft, and the order of two more Atlantique 2, Fokker F-27 Maritime Enforcers, or Lockheed P-3 Orions as part of a GCC maritime surveillance force. The AMD-BA Atlantique 2 (ANG) maritime patrol aircraft, however, proved to be too expensive. The other aircraft were considered largely as a supplement to the Saudi E-3As and to provide coverage for the rest of the southern Gulf. They depended on GCC cooperation and funding and this was not been forthcoming.⁸⁴

Saudi Arabia has a valid need for both modern mine warfare and MPA aircraft, but the requirement for submarines is dubious at best. Iran's deployment of Kilo submarines has increased the submarine threat, but coastal submarines are not ideal hunter-killers, and it is unclear how the Saudis could make cost effective use of submarines as a strike force.

Saudi naval facilities are excellent. The Saudi Navy's bases are exceptionally capable and well stocked. The main bases will eventually have up to five years of stocks on hand, and will have initial deliveries of two years' worth of inventory. The Jubail base is now the second largest naval base in the Gulf and stretches nearly eight miles along the coast. It

⁸² The Sandown class ships have glass reinforce plastic hulls, Type 2903 Variable Depth Sonar, remote control mine disposal systems, and Plessey NAUTIS-M command, control, and navigation systems. Defense News, March 20, 1989, p. 24, April 24, 1989, p. 28; Jane's Defense Weekly, October 26, 1991, p. 770, and February 20, 1993, p. 15.

⁸³ Jane's Defense Weekly, July 16, 1987, p. 58.

⁸⁴ Jane's Defense Weekly, December 12, 1987, pp. 1360-1361.

already has its own desalinization facility, and is designed to be expandable up to 100% above its present capacity.

The Saudi Navy is procuring an automated logistic system similar to that in the other services, and with extensive modern command and control facilities. This system became operational, along with hardened command centers at Riyadh, Jubail, and Jiddah, by the end of 1985. The navy was supposed to acquire automated data links to the E-3A, and the ability to obtain data from the E-3A AWACS as it operated in the ocean surveillance mode by the late 1980s, but its C³I system was not capable of supporting effective combat operations when the Gulf War began. Saudi Arabia purchased a \$307 million upgrade of its C³I system on September 27, 1990.⁸⁵ Other U.S. designed facilities include a meteorology laboratory, a Harpoon missile and Mark 46 torpedo maintenance facility, an advanced technical training school, and a Royal Naval Academy.

In summary, the Saudi Navy has enough equipment to be a relatively powerful force by regional standards, but is a long way from making that equipment fully effective. Its readiness is improving, and has been helped by crash training efforts during Operation Earnest Will (1987-1989) and the Gulf War. However, its current equipment mix requires a force of close to 15,000 men, the Navy is badly undermanned, and training standards are still low. It is dependent on foreign maintenance and logistic support. It is having problems operating its new French frigates, although it has gradually become fairly effective in operating its U.S.-supplied vessels.

Even with automation and foreign support, the Saudi Navy will not be able to operate all of its presently planned force for the late 1990s. While the Saudi Navy has made significant progress in recent years, it faces a decade of expansion before it can become a true "two sea" force capable of covering both Saudi Arabia's Gulf and Red Sea coasts. Even then, it will depend heavily on air support, and will be dependent on reinforcement by USCENTCOM and the British, French, and/or U.S. navies.

The Saudi Air Force

Saudi Arabia has given its highest priority to the expansion of its air force. The Royal Saudi Air Force (RSAF) is the only service that can cover Saudi Arabia's 2.3 million square kilometers of territory. It represents the investment most capable of cross-reinforcement of the other services. It also has the most impact in terms of regional

⁸⁵ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4.

prestige, and the most credibility in terms of being able to support other GCC states or to operate with USCENTCOM forces in a major crisis.

In mid-1993, the RSAF had 16,000 to 18,000 men, and 15 combat squadrons with about 250 combat aircraft. These included four fighter-attack squadrons with 50 F-5Es and three attack squadrons with 40 Tornado IDS. They included five interceptor squadrons with 92 F-15C/Ds and 24 Tornado ADVs. The three large F-15C/Ds interceptor squadrons had 70 F-15Cs and 22 F-15Ds, and the F-15Ds were deployed to each squadron to perform both training and operational missions. The Tornado IDS and ADV units also included dual-capable trainer aircraft.

The RSAF had two reconnaissance squadrons with 10 RF-5Es and 6 Tornado IDS-Rs, an airborne early warning squadron with five E-3As, and two multipurpose squadrons with 20 F-5Fs and 14 F-5Bs. These latter two squadrons have both a training and combat mission. The RSAF also has some RPVs, including Banshees and MQM-74s.

The 5 E-3A AWACS aircraft have been steadily upgraded to replace their main computer memories, and substitute semiconductors and bubble memories for their magnetic drums, tripling their memory capacity. Major radar system improvements had been made to improve data handling, sensitivity, provide real time data to each console, and provide the same range coverage against smaller cross section targets, Electronic support measures were installed in the aircraft for passive detection, location, and identification of electronic emitters, the software is updated beyond bloc 30/35, infrared countermeasures have been added to the engines, they have global positioning systems, there are five additional operator consoles.⁸⁶

The air force was equipped with modern munitions, including AIM-9L and AIM-9P infrared guided missiles, AIM-7F Sparrow and Skyflash radar guided missiles, and AGM-65 Maverick air-to-surface missiles. It had Rockeye, Sea Eagle, and Alarm air-to-ground weapons. Saudi Arabia had also bought MQM-74C Chukar II and Banshee remotely piloted vehicles for reconnaissance and target acquisition.

The support units in the air force included a tanker squadron with eight KE-3As and 7 KC-130Hs, and three transport squadrons with 7 C-130Es, 34 C-130Hs, 5 L-100-30HSs (hospital aircraft), and 35 C-212As. There were two helicopter squadrons with 13 AB-206Bs, 8 AB-205s, 27 AB-212s, and 7 KV-107s. There were 30 Hawk Mark 65 jet, and 32 BAC-167 turboprop, training aircraft capable of performing COIN and light attack

⁸⁶ Fax from Department of Defense, OSD/LA, January 11, 1987; Baltimore Sun, September 26, 1989, p. E-9; Jane's Defense Weekly, October 7, 1989, p. 744.

functions with machine guns, cannons, and rockets, and 12 Cessna 172 and 24 PC-9 training aircraft not armed for combat. There was also a Royal Flight with 1 B-747 SP, 2 B-707-320s, 4 BAe-125s, 4 CN-235s, 2 Learjet 35s, 2 C-140s, 6 VC-130Hs, 1 Cessna 310, and 2 Gulfstream III fixed wing aircraft, and 3 AS-61 and AB-212 helicopters.

The Saudi Air Force is backed by excellent foreign support. During the 1970s and early 1980s, Saudi Arabia was able to draw on U.S. Air Force and contractor support to create some of the most modern air facilities in the world. No U.S. or NATO base has sheltering or hardening equal to the Saudi bases at Dhahran and Khamis Mushayt, and similar facilities will be built at all of Saudi Arabia's main operating bases. Saudi Arabia now performs most of the support and service for its Lockheed C-130s and its F-5E/F units have also reached proficiency levels approaching those of many Western squadrons.

Saudi Arabia has also done a good job of operating today's most advanced fighters. The first of its F-15C/Ds were operational in Dhahran by early 1983. A second squadron was formed at Taif by the end of 1983, and a third became operational at Khamis Mushayt in July 1984. By late 1984 and early 1985, the Saudi Air Force was conducting major joint exercises in both the Gulf and Red Sea areas, and conducting Red-Blue or aggressor exercises similar to those employed by the U.S. Air Force. Saudi Arabia has maintained these proficiency levels ever since, and begun joint exercises with other members of the GCC. It has begun to crew to its five E-3As, and operated these aircraft with great success in 1987 and 1988. Saudi aircraft attrition levels are significantly higher than those of the U.S., but overall training levels are good.

While Saudi Arabia has lacked some of the C³I/BM systems, advanced avionics and electronics, munitions, and attack capabilities the USAF uses to achieve its high proficiency levels, it has also demonstrated a high level of squadron readiness, has begun to perform much of its own major support on the F-5, and provides Saudi support of the F-15 at its bases in Dhahran and Khamis Mushayt. Saudi Arabia has excellent stocks of air munitions and spares. For example, it ordered 101 shipsets of F-15 conformal fuel tanks, 909 AIM-7F, AIM-9P/L, 100 Harpoon ASM, and 1,600 Maverick missiles, JP-233 and BL-755 bombs and munitions before Iraq's invasion of Kuwait. It ordered large numbers of additional Aim-9Ls and Aim-7Fs in August 1990, and ordered 2,000 Mark 84 2,000 pound bombs, 2,100 CBU-87 cluster munitions, 770 AIM-7Fs, and components for laser guided bombs in July, 1991. While there is no way to estimate Saudi stock, they are almost

certainly large enough to support both the Saudi Air Force and a major reinforcing deployment by the U.S. Air Force for a mid-intensity conflict.⁸⁷

The Royal Saudi Air Force, however, has been in a period of constant transition for most of its existence, and this rate of transition has increased since the late 1980s. After trying for nearly five years to buy more F-15s, and acquire an advanced attack mission capability from the U.S., the Saudis turned to Britain. In July, 1985, President Reagan sent King Fahd a letter stating that he could not obtain Congressional approval of the sales Saudi Arabia sought. As a result, the Saudi Air Force initiated talks with Britain that led to an agreement in September, 1985 that Britain would provide a total of 60 Tornado ADV air defense fighters, 60 Tornado IDS/GR.1 attack strike-fighters, light attack aircraft, trainers, helicopters, munitions, and British support services.

That same month, Saudi Arabia signed a series of memorandums of understanding (MOUs) with Britain which gave Saudi Arabia the option of turning each MOU into an individual contract. These MOUs were called the al-Yamamah agreement. Saudi Arabia's first major actual contract under the MOUs cost \$8 billion, but the total value grew to a total of \$29 billion by 1992 -- including training, support, construction, naval vessels, etc. It was worth roughly \$4 billion a year to Britain by the early 1990s. Saudi Arabia agreed to pay for al-Yamamah by bartering oil -- which gave it guaranteed markets and allowed it to bypass some of the constraints imposed by OPEC quotas.

The first phase of the al-Yamamah program called for the purchase of 24 Tornado ADV air defense fighters; 48 Tornado IDS/GR.1 ground attack fighters; 30 BAe Hawk 65 trainers; 30 Pilatus PC-9 trainers; and two Gulfstream aircraft, air weaponry, and ground support and training services.

The Tornado ADV did not prove to be a successful air defense fighter for either the British Royal Air Force or Saudi Arabia. It turned out to be underpowered. While its limited dogfight performance might not have been important in areas where long range missile combat is critical, the short distances and reaction times affecting many potential threats to Saudi Arabia require dogfight superiority. The radar warning receiver was not fully effective, and Tornado's radar and air defense avionics experienced development and performance problems, as did efforts to fully integrate and qualify advanced air-to-air missiles with the aircraft.

⁸⁷ Washington Post, July 30, 1991, p. A-12; Richard F. Grimmit, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 4.

While such problems are scarcely unusual in a new variant of an aircraft, they were severe enough in the case of the Tornado ADV to prompt the RAF to talk about converting its air defense Tornados to reconnaissance, strike, or electronic warfare missions the moment it could obtain some form of Eurofighter. The RSAF's experience with the first eight Tornado ADVs was also negative, and it shifted its order for 6 Tornado ADVs to the reconnaissance variant of the aircraft.

These problems did not prevent additional Saudi orders. In July, 1988, Saudi Arabia signed a letter of intent for a second phase of al-Yamamah. According to Saudi sources, the second phase included 48 more Tornado strike-attack fighters. According to various British sources, it included 24 IDS and 24 ADV aircraft, or 36 IDS and 12 ADV aircraft. All sources agree that it included 40 Hawk 100 and 20 Hawk 200 trainer-fighters, 3 Vosper Thornycroft mine counter measure vessels, C³I systems, and additional weapons, spares, ground support, and training. The Hawk 200 has combat radars, unlike the trainer, and was ordered with Sea Eagle anti-ship missiles. Munitions included the Skyflash, ALARM, Sea Eagle, and AIM-9L missiles, and JP-233 and BL-755 bombs.⁸⁸

The new series of MOUs also included the order for 80 Sikorsky Black Hawk helicopters for the army discussed earlier. The RSAF had already ordered 12 Black Hawks through the U.S., but these were transport versions of the aircraft and it feared that the U.S. Congress would not sell it armed or attack versions. Accordingly, it ordered the 88 Black Hawks from Westland in Britain. According to some reports, it ordered them with TOW air-to-surface missiles, and also ordered 12 TOW conversion kits for the Black Hawks it had ordered from the U.S.⁸⁹

The total value of the memorandums of understanding that made up the second phase of al-Yamamah was approximately \$18 billion, and the deal also included light transport aircraft (12 BAe 125s and 4 BAe 146s), and two major military cities and air bases for the new Tornado forces, complete with British support.⁹⁰ The new British-built military cities and air bases were to be located at Taiba (about 290 kilometers southwest of Tabuk) and at al-Sulayyil (on the edge of the Empty Quarter). The air bases were to be equipped with at least 25 hardened multiple aircraft shelters. Saudi Arabia felt that its existing bases were adequate in the Eastern Province and near the PDRY, but were not suited for a force of nearly 400 combat aircraft. This brought the potential total value of

⁸⁸ Jane's Defense Weekly, February 13, 1993, p. 41.

⁸⁹ Jane's Defense Weekly, February 13, 1993, p. 41.

⁹⁰ Jane's Defense Weekly, Jul 9, 1988, p. 23, Jul 16, 1988, p. 59, Jul 23, 1988, p. 111 and 122-123, Mar 28, 1992, pp. 533-535; Newsweek, July 25, 1988, p. 47; New York Times, July 11, 1988, p. 1 and July 12, p. 3.

the two phases of al-Yamamah to \$60 billion, projected over a 15-year life for the programs.⁹¹

There were good reasons for the Saudi purchase of the first phase of al-Yamamah package. Saudi Arabia's 12 BAC-167 trainers were only armed with 7.62mm machine guns. They no longer could be used in anything other than light support functions. It had bought its obsolete Lightning fighters from the U.K. under pressure from former Secretary of Defense Robert S. McNamara. The U.S. effectively forced Saudi Arabia to buy the Lightning as part of a then-covert three-cornered deal, where the Lightning sale to Saudi Arabia was designed to allow the U.K. to buy the F-111 from the U.S.⁹² Even when it was first delivered, the Lightning never had the range, dual capability, avionics, and performance Saudi Arabia needed.

Saudi Arabia made other aircraft purchases as a result of the Gulf War. It purchased 24 additional F-15C/Ds from USAF stocks, 8 C-130Hs, and 2 C-130H-30 aircraft and large numbers of Aim-9Ls, and AIM-7Fs from the U.S. in late August, 1990. It also bought the Falcon Eye electronic warfare aircraft, although it knew that this lacked the sophistication and capability of U.S. and Israeli ELINT aircraft.⁹³

In spite of these purchases, Saudi Arabia still faced problems in shaping its modernization plans for the 1990s. Saudi Arabia needed additional modern aircraft. Its F-5E-IIs and F-5Fs were relatively advanced models of the F-5E/F, equipped with INS, refueling probes, and the ability to fire Mavericks (the F-5F can also fire laser guided bombs). The oldest of these F-5 aircraft, however, were nearing the end of their useful life, and the F-5 production line had long been closed. The F-5Es were not cost-effective to upgrade and they require more than twice as much Saudi and foreign technical support manpower per plane as an F-15. The F-5E/Fs were also too short-ranged and limited in avionics and payload to adequately cope with the kind of advanced-threat aircraft being introduced into the region, or to deploy from one Saudi air base in support of another. They needed to be phased down into a training and light support role. In fact, 20-30% of Saudi Arabia's F-5 strength was already devoted to full time training missions.

Saudi Arabia's F-15C/Ds presented different problems. The F-15C/D was likely to have adequate performance to fill the role of first line air defense role until well after the

⁹¹ *Jane's Defense Weekly*, July 9, 1988, p. 23, July 16, 1988, p. 59, and July 23, 1988, p. 111 and 122-123, June 15, 1991, p. 998, October 26, 1991, p. 770, March 28, 1992, pp. 533-535; *Newsweek*, July 25, 198, p. 47; *New York Times*, July 11, 1988, p. 1 and July 12, p. 3.

⁹² See the author's, *The Gulf and the Search for Strategic Stability*, pp. 122-126.

⁹³ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 3; *Defense News*, September 7, 1992, p. 7; .

year 2010. The aircraft showed during the Gulf War that it could do an excellent job in air-to-air combat against the most advanced aircraft in service in potential threat nations. The Saudi F-15C/Ds, however, were configured as a one mission aircraft and could only be used for air combat.

Although the U.S. Air Force had recommended that the Saudi Air Force be given an advanced dual-capable fighter as early as 1977 -- when it conducted the original studies that led to the U.S. sale of the F-15 -- the U.S. never sold Saudi Arabia the bomb racks and attack systems necessary to make the F-15C/D effective in the air-to-ground role. As a result, a key part of Saudi Arabia's total first-line fighter strength has been unable to perform effective attack missions, or provide attack support to Saudi land and naval forces.

The Gulf War clearly showed the importance of offensive airpower, and demonstrated that the Saudi Air Force could use the Tornado in long range strike missions. It may even have Saudi Arabia to try to make all 48 Tornado it planned to buy under al-Yamamah II attack aircraft. The Tornado proved during Desert Storm that it could be an effective strike fighter, once it was equipped with new FLIR and laser designator pods, and delivered over 1,000 laser guided bombs and ALARM missiles, and it was clear that it could help meet Saudi Arabia's need for a long range deterrent to Iraq and Iran. However, the Tornado lacked the flexibility, maneuverability, and avionics to fly demanding missions using precision guided munitions against advanced air defenses, and did not meet all of Saudi Arabia's needs for a first line strike aircraft.

Saudi Arabia's solution was to buy 72 more F-15s in 1992. This purchase included 24 F-15 aircraft designed for air combat, and 48 F-15 aircraft dual-capable in both the air defense and strike/attack missions. All 72 F-15s were designated the F-15XP, although they involved two types of aircraft, and the sale involved about \$5 billion worth of aircraft, and up to \$4 billion worth of other arms and supplies -- including \$800 million worth of construction. It included 24 spare engines, 48 targeting and navigation pods, 900 AGM-65D/G Maverick air-to-surface missiles, 600 CBU-87 bombs, 700 GBU-10/12 bombs, and special mission planning systems.⁹⁴

The 24 air defense versions of the F-15XP are air defense aircraft based on the F-15E air frame. They cannot use navigation and targeting pods, or laser illuminators, and can only drop general purpose bombs. Their radars will be better than those on the F-15CD, with a resolution of 60 feet at 20 nautical miles versus resolution of 530 feet in the

⁹⁴ Aviation Week, September 21, 1992, p. 26; New York Times, September 12, 1992, p. A-1, September 15, 1992, p. A-1.

F-15C/D. They will use the same AIM-7F and AIM-7M radar guided air-to-air missiles used by existing Saudi F-15C/Ds, and the AIM-9S, which is the export version of the radar guided AIM-9M air-to-air missiles. They will have the technical capability to use AMRAAM, but the transfer of this missile have not been approved. Added to Saudi Arabia's existing 93 F-15C/Ds, they will give Saudi Arabia a total of 120 advanced air defense aircraft, and can be used in attack role.

The 48 F-15XP strike/attack variants of the F-15E Strike Eagle differ from the U.S. Air Force version of the F-15E in several important ways. They will use the AAQ-20 Path Finder navigation pods, the AAQ-20 Sharpshooter targeting pods, and a laser illuminator. The Path Finder pods will have a terrain following radar, but will have reduced ECCM capabilities that will allow them to be tracked by U.S. types of fighters. The Sharpshooter pods for the F-15XP will only have limited versus full cluster bomb delivery capability. They will deliver the A/B version of the electro-optical Maverick and the D/G version of the IR Maverick, but will not have a missile boresight correlator, will only have a single-fire rather than multiple fire capability for Maverick, and will not be equipped to deliver the HARM anti-radiation missile.

The F-15XP will not be supplied with conformal fuel tanks of the kind supplied on the F-15E. This will deprive it of two extra tangential stores stations for carrying extra munitions and some of its ability to carry precision guided weapons. This will not affect Saudi Arabia in launching defensive missions against Iran and Iraq, but will force it to trade range for payload in any missions flown against Israel.

The F-15XP will include several other changes from the F-15E. It will have a de-tuned version of the APG-70 radar on the 15E, which cannot use the AMRAAM air-to-air missile. The radar on the F-15XP will have only 60% of the bandwidth of the regular APG-70, and will only have 16 channels, rather than the regular 32. It will not have a computerized mapping capability, and will only have a resolution of 60 feet at 15 nautical miles versus 8.5 feet at 20 nautical miles in the F-15E. The F-15XP will have altered software for the AWG-27 armament control system. It will lack a data transfer module, and its ASW-51 auto flight control will not include the terrain following mode. It will use a commercial grade secure voice and global positioning system navigation system.

Most importantly, the F-15XP's electronic warfare suite will only missionized only for use against non-U.S. aircraft and threat in the Gulf and Red Sea area. This means substantial modifications to the ALQ-135 internal countermeasures set, the ALR-56C radar warning receiver, the ALE-45 countermeasures dispenser, and MX-9287 interference

blanker set. The ALQ-135 will not have the capability to jam friendly aircraft by type, and the radar warning receiver will not identify friendly aircraft by type.

These modifications will have no impact on Saudi capability to deal with any threat aircraft in Iran and Iraq, but they effectively preclude effective penetration into Israel's air space because Israeli fighters, surface-to-air defenses, and electronic warfare assets all use U.S. or Israeli designed systems, and none of the electronic warfare assets on the XP will be tuned to counter such systems.⁹⁵ The one issue that has not been decided is the engine on the XP. The F-15E is now powered by the Pratt and Whitney F-100-229 engine, but can be powered by the GE F-110. The two companies will compete for the sale of the 168 engines involved in the sale.

These changes allowed the F-15XP sale to win the approval of Congress. President Bush send the sale forward for Congressional review on September 14, 1992, after Congressional leaders assured him that they had the votes to ensure that Congress would not block the sale. Israel's new Labor government indicated that it did not pose the same objections to the sale as did the Likud.

Part of the willingness of Congress to support the sale came from the fact that most members felt it did not pose a risk to Israel or that the U.S. might lose control of critical weapons technologies that would be used against it. Israel was certainly influenced by the willingness of the Bush Administration to support providing \$10 billion worth of loan guarantees to Israel following the election of a Labor government, but it too was influenced by the changes made to the aircraft and the conditions under which it was sold. The risks of technology transfer were minimized resolved in three different ways. First, by tailoring the sales to provide the capabilities that friendly Arab states need while limiting their ability to threaten Israel, second by ensuring that Israel retains its military "edge" in other ways, and third by ensuring that Israel receives the aid it needs to maintain a strong overall force posture.

The importance of the technical differences between the F-15E and the F-15XP have already been described. It is important to point out, however, that the potential risk of

⁹⁵ Comparisons based on data provided by McDonnell Douglas; Aviation Week, September 21, 1992, p. 26; New York Times, September 12, 1992, p. A-1, September 15, 1992, p. A-1; Business Week, March 16, 1992, p. 37; Defense Daily, January 28, 1992, p. 133; London Financial Times, November 6, 1991, p. 1, January 21, 1992, p. 28; Washington Post, November 6, 1991, p. C-1, January 24, 1992, p. 7, September 3, 1992, p. A-39; Jane's Defense Weekly, October 26, 1991, p. 770, January 25, 1992, p. 102; Guardian, November 7, 1991, p. 11; Wall Street Journal, November 6, 1991, p. 3; Aerospace Daily, October 28, 1991, p. 152, November 8, 1991, p. 221, November 14, 1991, p. 247; Defense News, February 24, 1991, p. 3, December 23, 1991, p. 1.

the aircraft being used in an attack on Israel, or being used by an unfriendly regime in the event of some unforeseen coup, is also limited by the conditions of the sale. Saudi Arabia cannot man or support depot level maintenance for either the overall aircraft or the APG-70 radar. Saudi Arabia must rely on U.S. technicians and technical support to keep the aircraft operating well beyond the year 2005. As Iran showed during the first weeks of the Iran-Iraq War, even a relatively sophisticated air force can lose much of its operational strength in a few days if it no longer has sophisticated technical support, and the only aircraft Iran had with sophisticated avionics was the F-14 -- which could not use its Phoenix missiles by the time the Iran-Iraq War started.⁹⁶

Equally important, the sophistication of the F-15XP and modern combat aircraft and munitions limits the risk of technology transfer. The performance of the F-15XP is determined largely by the software its computer and other avionics use to recognize threats, launch air combat and attack munitions, counter enemy sensors and weapons, and navigate to target. No nation other than the U.S. can alter the software on the F-15XP. It will have no software optimized to attack U.S. or Israeli air and air defense systems, and it cannot be modernized to deal with any changes in existing systems, operate a single new weapon, or deal with a single new threat without U.S. approval. It also cannot be upgraded as part of the U.S. Air Force multi-stage improvement programs (MSIPs) planned for the F-15E without U.S. Given the probable 20 year operating life of the F-15XP (1995-2015), this is a critical constraint on Saudi use of the F-15XP for missions against Israel or U.S. forces, but one that in no way restricts its value for any of the purposes for which Saudi Arabia needs the aircraft.

The issue of ensuring that Israel retained its military "edge" in other ways required a U.S. commitment to provide Israel with enough technology superior to that of any potential Arab threat to offset the impact of U.S. arms transfers. President Bush and Secretary Cheney made such a commitment to provide advanced technology at the time they announced the sale of the F-15XP, and Congress soon made it clear that this commitment had broad bipartisan support. On September 24, 1992, more than thirty senators -- led by Senator John McCain of Arizona and Joseph Lieberman of Connecticut -- wrote President Bush on September 24, calling for a six point program that included (a) providing the \$10 billion in loan guarantees, (b) maintaining the existing level of military and economic aid to Israel in constant dollars on a long term basis, (c) providing long term

⁹⁶ There are unconfirmed reports that air force officers loyal to the Shah ensured that the F-14s were not fully operational.

military and economic aid to Egypt to ensure the safety of the Camp David accords, (d) giving Israel the same technology sharing arrangements as our NATO allies, (e) establishing cooperation in civil space activities, (f) improving cooperation in intelligence, (f) improving other aspects of military cooperation, and (g) promptly implementing prior agreements to pre-position \$300 million worth of equipment in Israel and provide Israel with \$700 million worth of military equipment made surplus by the end of the Cold War.

Two days later, the Bush Administration made it clear that Israel would continue to be given an edge in terms of electronic warfare, munitions types and warheads, software, satellite intelligence, and a wide range of other capabilities. It also agreed that the U.S. would soon preposition \$300 million worth of U.S. munitions and equipment in Israel, and transfer the \$700 million worth of surplus military stocks that the U.S. no longer needed for NATO -- including additional Apache AH-64 attack helicopters and Black Hawk special mission helicopters, and other systems.

As part of this effort, the U.S. and Israel established special working groups on prepositioning; transferring stocks of surplus U.S. military equipment to Israel; intelligence-sharing; expanding high-technology military cooperation; and developing a global protection system against missile attacks through a combination of intelligence sharing, ground and space based early warning systems, and use of the THADD or Arrow to intercept theater range missiles. The Bush Administration also agreed to providing Israel with the \$10 billion in loan guarantees before the F-15 sale to Saudi Arabia, and Congress approved them on October 1, 1992.⁹⁷

These arrangements cleared the way for a sale that provided major strategic benefits for both the Royal Saudi Air Force and the U.S. The U.S. and Royal Saudi Air Forces have already proven they can cooperate closely. They worked together during the Iran-Iraq War before the U.S. reflagging operation, and then during operation Earnest Will. They fought together during the war with Iraq, and they are now cooperating in Operation Southern Watch in enforcing the no fly zone over southern Iraq.

The RSAF will receive the F-15XPs during 1995-1997, and will receive the aircraft at the rate of one squadron a year. The first full squadron of F-15XPs should become fully operational in Saudi Arabia in mid-1996, the second in 1997, and the third in 1998. It will then require another year to fully absorb the aircraft into its force structure. By this time,

⁹⁷Aviation Week, September 21, 1992, p. 26; New York Times, September 12, 1992, p. A-1, September 15, 1992, p. A-1; Washington Post, September 27, 1992, p. A-16; National Journal, September 26, 1992, P. 2199; St. Louis Post Dispatch, April 10, 1999, P. 3-C; Washington Post, October 17, 1992, p. A-17; Defense News, September 14, 1992, pp. 1,50; March 29, 1993, p. 2.

Saudi Arabia will be phasing out its F-5E/IIIs. All of Saudi Arabia's F-5s will be over twenty years old by 1999, and its initial F-15C/Ds will be 12 to 18 years old.

Even in the 1990s, the F-15XP will still be a far more advanced strike-fighter than any aircraft in service in Iran and Iraq. It will give Saudi Arabia a decisive edge over Iraq and Iran well beyond the year 2000. It will fully meet Saudi Arabia's desire for an F-15E-like aircraft that can attack deep into Iraqi or Iranian territory, defend itself in air-to-air combat, and launch air-to-ground ordnance from outside the range of short range air defense missiles. The F-15XP can also be rapidly upgraded in an emergency if Iran or Iraq should acquire new types of fighters with unforeseen capabilities.

Further, Saudi operation of the F-15XP will ensure interoperability between the U.S. and Saudi Air Forces. Saudi Arabia will buy additional service and training facilities, munitions, spare parts, and specialized electronics facilities that can support both Saudi and USAF F-15 strike-attack aircraft -- as well as Saudi and U.S. F-15 air defense fighters. Such facilities and munitions stocks will vastly improve U.S. rapid deployment capabilities in the Gulf, and give the U.S. the ability to deploy and support well over 72 F-15E attack aircraft in a matter of days. More broadly, the Saudi F-15XP buy will also ensure Saudi and U.S. interoperability at every level of operations from the individual sortie to large scale command and control and battle management.

Saudi Arabia also went ahead with the purchase of additional Tornado aircraft. In April, 1992, Britain announced that Saudi Arabia had agreed to a financing package for the \$2.7 billion sale, and indicated that the deal would again be financed "off-budget" by shifting oil revenue directly to a London account. This purchase of the additional aircraft was made possible financially by deciding not to turn other MOUs into firm contracts. On August 24, 1992, Saudi Arabia cut the number of new air bases it would buy from two to one. This was possible because Saudi Arabia found during the Gulf War that its existing facilities could sustain the build-up of some 500,000 foreign troops, and that they had substantial over-capacity.

The decision to cut back on other parts of the MOU saved Saudi Arabia up to \$15.6 to \$19.5 billion, and gave Saudi Arabia money it could use to complete the buy of 48 Tornado IDS/GR.1s. It signed a contract with Britain in early February, 1993, which included shelters, maintenance, weapons, and training for the aircraft. The aircraft were to be delivered in configurations similar to those used by the RAF, and had Turbo-Union RB-199 engines, Sky Shadow ECM pods, and GEC-Marconi flight control systems, radars, and

radar homing and warning receivers. The order did not include more Hawks and mine-countermeasure vessels, but negotiations continued on these purchases.⁹⁸

These purchases of F-15XPs and Tornados gave Saudi Arabia the most modern air force in the Gulf, but they did not fully solve its modernization problems. The Saudi Air Force still faces three major problems.

- o First, the F-15XP sale will cost nearly \$9 billion, and the Tornado sale will cost \$7.5 billion. Saudi Arabia will face significant funding problems in finding this money, in spite of a slow payment schedule and some concessionary terms.⁹⁹

- o Second, the F-15XP and Tornado purchases still leave the Saudi Air Force with some hard decisions to make about the replacement of the F-5EII. Saudi Arabia had talked previously about buying Hawks, F-16s, and F-18s as direct replacements for 95 of its F-5s. However, the buy of 72 F-15XP aircraft, and 48 more Tornado IDS/GR.1s, plus some additional Hawks, seems to have convinced Saudi Arabia that it could phase out its F-5s without a major new buy of additional aircraft.

The sheer cost of any additional aircraft purchase was a key factor in deciding against a follow-on to the F-5, but Saudi Arabia also found that major diseconomies of scale arose in trying to make a limited buy of a new advanced fighter like the F-16 or F-18. It takes about 50% to 100% more Saudi and foreign manpower to support a new type as it does to add an additional F-15 or Tornado, and it creates major problems in terms of additional facilities and maintenance stockpiles.¹⁰⁰

- o Third, it is one thing to train pilots and another to reshape an entire air force. The purchase of the F-15XPs and additional Tornados requires the Saudi Air Force focus on offensive. This is not an easy conversion to accomplish, even with U.S. and British support. It means rethinking many aspects of Saudi command and control, reconnaissance and targeting, combined operations, support, and training.

Saudi Air Force Lessons from the Gulf War

⁹⁸ Jane's Defense Weekly, February 6, 1993, p. 6, February 13, 1993, pp. 38-42; New York Times, January 30, 1993, p. 3; Defense News, October 12, 1992, p. 3; Manchester Guardian, October 25, 1992, p. 9; Financial Times, November 18, 1992, p. 10.

⁹⁹ The deal would be in addition to the \$3.5 billion Al Yamamah I sale and bring total related sales to around \$10 billion. Jane's Defense Weekly, April 11, 1992, p. 597; Flight International, April 21, 1992, p. 21; Defense News, August 31, 1992, p. 40.

¹⁰⁰ Signal, August, 1991, p. 116; Aviation Week, December 5, 1988, p. 23; Aerospace Daily, October 28, 1991, p. 152.

The problem of converting from a defensive to offensive force may prove to be the most serious challenge the Saudi Air Force will face in the mid and late 1990s. It is still largely a defensive air force. Although the Saudi Air Force flew some 6,800 sorties during the Gulf War (January 17, 1991 to February 28, 1991, and some 2,000 sorties over the Kuwaiti Theater of Operations and Iraq) these sorties were largely counter air.

These defensive operations built on Saudi Arabia's experience during the Iran-Iraq War. During the Iran-Iraq War, the Saudi Air Force worked closely with the U.S. Air Force, and developed a patrol line called the Fahd Line near the center of the Gulf, a scramble line where aircraft on alert took off the moment an intruder came close, and inner defense lines covered by its Improved Hawk missiles. This system was modified during the Gulf War to initially cover both the north and south, because of the possible risk of hostile air attacks from Yemen and the Sudan. During the rest of the war, Saudi Arabia steadily refined its system, working with the U.S. Air Force and other UN Coalition forces to develop a layered system of land and airborne sensors and defense lines that could cover threats from Iraq as well as Iran.

Given this experience, it is not surprising that Saudi F-15C pilots performed well in air defense missions during the Desert Storm. Saudi pilots proved to be competent and aggressive in well air-to-air combat during the brief period when Iraq actively challenged Coalition fighters, and one Saudi pilot scored a double kill. Saudi Arabia was also the only southern Gulf country that had a modern concept of air defense operations.

At the same time, the Gulf War showed the Saudi Air Force still had some serious weaknesses. It did fly some interdiction, airlift, and AWACs sorties, but it could not plan or control its offensive operations on a large scale level. It had no force-on-force doctrine, or ability to operate beyond the squadron level. There were language, communications, inter-service cooperation, and mission planning problems. Coordination problems often emerged between the RASF and the Ministry of Defense (MODA). The RSAF also lacked the pilot numbers to properly operate its aircraft, and some Saudi Tornados were flown by British pilots. Added foreign technicians had to be brought in to maintain reasonable sortie rates with the F-15s and Tornados, and the war showed the RSAF will be dependent on such technicians for at least the next decade.

The Saudi Air Force initially had problems in finding the manpower to operate its AWACS, and could not easily integrate AWACS data into its Command Operations Center in Riyadh, and Sector Operating Centers (SOCs) throughout the Kingdom. The Air Force operates these centers, although the Air Defense Force has responsibility for some functions and the radars and equipment at surface-to-air missile sites.

Saudi Arabia has learned a great deal from the Gulf War, however, and from accelerated training assistance it received from the U.S. during the war. As a result, it is considering buying four additional AWACS aircraft. These aircraft would allow Saudi Arabia to support continuous air defense and maritime surveillance coverage over both coasts. They also would greatly ease U.S. deployment problems in reinforcing Saudi Arabia or its smaller Southern Gulf neighbors. The U.S. and Saudi Arabia have found that flying a full air defense and air control and warning screen against a northern Gulf state like Iraq or Iran can require up to four simultaneous orbits by AWACS aircraft, or 9-12 aircraft. Saudi Arabia can only fly two orbits with its current total of five E-3As. Saudi Arabia is currently studying such purchases, based on either a B-767 air frame or a modified Saudi B-707.¹⁰¹

The Saudi air force did not do well in electronic warfare, and reconnaissance missions. The Saudi RF-5 force proved largely useless in seeking out targets and rapidly processing information, and Saudi Arabia was almost completely dependent on the U.S. for reconnaissance and intelligence. This combat experience indicates that Saudi AWACS needs the passive ELINT systems being fitted to U.S. AWACS. These electronic intelligence systems are called the AN/AYR-1, and provide the ability to detect, locate, and identify the radar emissions of ships, aircraft, and ground systems -- often indicating their precise type and location. It also may need the upgraded CC-2E central computer, GPS navigation system, and Class 2H version of the secure Joint Tactical Information Distribution System (JTIDS). This Block 30/35 upgrade will only be available for U.S. aircraft during 1995-1999, however, and it is unclear whether it will be provided to Saudi Arabia.

More broadly, the Saudi Air Force needs much more extensive exercise training at the mid and high command level. While the Saudi Air Force could fly against fixed, lightly defended, interdiction targets, it could only do so with foreign planning and support. It proved to have little operational flexibility in adapting from range training to actual close air support missions, and communications between the Saudi Air Force and Army was so poor that this present major problems.

These weaknesses are not unusual in the best air forces in the developing world. They do not prevent the Saudi Air Force from being the most effective air force in the southern Gulf, and one of the most effective air forces in the Arab world. At the same time, they

¹⁰¹ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 3; Defense News, September 7, 1992, p. 7; .

indicate that Saudi Arabia will have major problems in defending against Iraq or Iran unless it had extensive foreign support. It will be a minimum of ten years before the RSAF can adequately match its offensive and defensive capabilities. It will need at least a decade more U.S. and British assistance to become an effective air force capable of force-on-force operations and combined operations.

The Saudi Air Defense Forces

The creation of a separate Saudi Air Defense Corps to provide fixed and mobile land-based air defense of key targets throughout the Saudi Arabia was intended to create a more professional service, and to reduce the manpower quality and leadership problems that emerged when these air defense forces were subordinated to the army.

Estimates of the strength and equipment of the Air Defense Force differ according to which surface based air defense units are included in the total, and can range from 4,000 to over 15,000 men. It is clear that the Air Defense Force controls all of Saudi Arabia's Improved Hawk missiles, and most of its medium surface-to-air missiles, but its exact lines of control are unclear. Some sources indicate that it controls all mobile and crew powered weapons, and that the Army controls all manportable Mistral, Stinger, and Redeye teams. Other sources indicate the Army also controls are Crotale missiles. Control of given deployments of anti-aircraft guns is also unclear.

According to the IISS, the Air Defense Force had 4,000 men and some 33 surface-to-air missile batteries in 1993. According to other sources, Saudi Arabia's total air defense manning sharply exceeded 10,000 men. Its total major surface to air missile strength included 16-17 Improved Hawk batteries with 96 fire units, 9 Crotale batteries with 48 Crotale fire units, 16 air defense batteries with 72 Shahine fire units, and 50-60 AMX-30SA 30mm self-propelled guns.¹⁰²

Most Shahine units are static units for the defense of air bases and key targets. All of the Shahine systems are to be upgraded as the result of an agreement with France signed in 1991. These units provide close-in defense capability for virtually all of Saudi Arabia's major cities, ports, oil facilities, and military bases.

Total Saudi holdings of manportable surface-to-air missiles include 500-700 Mistrals, 350-400 Stingers, and 500-600 Redeyes. They also include 60 M-163 Vulcan 20mm anti-

¹⁰² For typical reporting see IISS, Military Balance, 1992-1993, pp. 120-121; Military Technology, World Defense Almanac, 1992-1993, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159. The Hawks are MIM-23Bs.

aircraft guns, 30 V-150s with Vulcan 20mm guns, 30 towed 20mm Vulcans, 150-170 35 mm AA guns, and 150 L/70 40mm guns (most in storage).¹⁰³

Saudi Arabia is also taking delivery on six Patriot fire units or batteries, 384 Patriot long-range air defense missiles, six AN/MPQ-53 radar sets, six engagement control stations, and 48 launcher stations. These systems are currently manned by U.S forces, and not only will greatly improved its low to high level air defense capability, they will provide substantial defense against medium range and theater ballistic missiles. Saudi Arabia indicated it would purchase these units as part of its Gulf War arms package on September 27, 1990. It indicated in 1991, that it wanted to buy 14 more Patriot fire units (with 64 Patriot long-range air defense missiles, 1 AN/MPQ-53 radar sets, 1 engagement control station, and 8 launcher stations each) to defend all its cites, military bases, and major oil facilities.

While Saudi Arabia and the U.S. Army had not completed full planning for such a system as of mid-1993, their studies indicated that it might require a total of 26 fire units. Saudi Arabia signed a \$1.03 billion contract for the first part of this force in December, 1992. This contract included 13 launchers, 671 missiles, and associated equipment.¹⁰⁴

These Patriot units Saudi Arabia bought were also the PAC-3 version of the Patriot, with greatly improved software, radar processing capabilities, longer range missiles, better guidance systems, and more lethal warheads. Unlike the PAC-1 and PAC-2 systems used during the Gulf War, they specifically designed to kill missiles at comparatively long ranges and to fully discriminate between warheads and decoys and parts of the missile body. Saudi Arabia also signed a \$580 million support contract with Raytheon in March, 1993, for both its new Patriots and IHawks.¹⁰⁵

Saudi Arabia has steadily reorganized much of its ground based air defense, and made significant further improvements during the Gulf War, but the Corps has been slow to acquire the quality of manpower it needs. It also has lacked the systems integration, battle management systems, and C3I software and integration it needs for effective operation.

¹⁰³ IISS, Military Balance, 1992-1993, p. 121.

¹⁰⁴ Richard F. Grimmitt, "Arms Sales to Saudi Arabia," Congressional Research Service, IB91007, August 28, 1991, p. 3; Defense News, September 23, 1991, pp. 1 and 36, March 1, 1993, p. 17; Washington Post, November 12, 1991, p. C-1, New York Times, November 9, 1991, p. 3; Jane's Defense Weekly, October 19, 1991, p. 699; Washington Times, October 24, 1991, p. A-4; Defense Daily, November 8, 1991, p. 223, November 11, 1991, p. A-14; Wall Street Journal, December 24, 1992, p. 2.

¹⁰⁵ Raytheon background brief, February 1992; Defense News, September 23, 1991, pp. 1 and 36, March 1, 1993, p. 17; Aviation Week, January 4, 1993, p. 25; New York Times, February 17, 1993, p. D-4; Washington Post, december 24, 1992, p. A-8.

Unfortunately, U.S. contractors effort to improve the integration of the Saudi Air Defense Corps' Improved Hawks, Shahines (Improved Crotale), anti-aircraft guns, and land-based radars and C³I systems have failed to be effective, as have the initial efforts to integrate many of these systems into a modern air defense system as part of the Peace Shield program.

The Saudi Arabia air defense network was first developed in the 1960s and used U.S. and British radars. Saudi Arabia then added a number of bits and pieces. It bought a Thomson CSF air command and control system, and four Westinghouse AN/TPS-43 three dimensional radars in 1980. It then ordered AN/TPS-43G radars in 1981 to modernize its system as part of the Peace Pulse program, and updated its system to provide command and data links to its E-3A AWACS. This left Saudi Arabia with major communications and CI³ integration problems which it attempted to solve by giving major contracts to Boeing and Litton.¹⁰⁶

The Litton system involved a \$1.7 billion effort to provide C³I, sensors, communications systems, handle the interface between missiles and other air defense systems, build sites, and train personnel. Key elements involved 17 major communications links installed in S-280C militarized transportable shelters, and included both line-of-sight and tropospheric scatter links of 72 channel capacity. The field phase involved 34 low-level and 34 high-level shelters. While there is some dispute as to responsibility, the system was only partially operational when the contract was due to be completed, and the Saudi system was only partly operational. It still seems to be experiencing some operational problems, although some may be the result of a lack of trained Saudi personnel.¹⁰⁷

The Peace Shield program was a far more ambitious \$8.5 billion effort to give Saudi Arabia a system of 17 AN/FPS-117(V)3 long range three-dimensional radar systems fully netted with its AN-TPS-43 and AN-TPS-72 short and medium range radars. It was have (a) a central command operations center (COC) at Riyadh, (b) five sector command centers (SCCs) at Dhahran, Raif, Tabuk, Khamis Mushayt, and Al Kharj to cover the country, and (c) additional sector operations centers (SOCs) and each major air base. It was to use a tropospheric scattering and microwave communications system to integrate Saudi Arabia's surface-to-air missile defenses, some anti-aircraft gun units, its radars, its E-3A airborne warning and control systems (AWACS) aircraft and fighters, and six major regional

¹⁰⁶ Flight International, July 23, 1991, p. 18; Jane's Defense Weekly, July 15, 1989, p. 57.

¹⁰⁷ Flight International, July 23, 1991, p. 18; Jane's Defense Weekly, July 15, 1989, p. 57.

underground operating centers and numerous smaller sites -- all of which were to be managed by a command center in Riyadh.

The software and systems integration effort required to make Peace Shield effective were years behind schedule at the time of the Gulf War, however, and the U.S. Air Force Electronic Systems Division issued a show cause notice and then terminated Boeing's work on the program in January 1991. Saudi Arabia had to begin again with a new contractor. Saudi Arabia shifted the contract from Boeing to Hughes in July, 1991, at a cost of \$837 million.¹⁰⁸

The Peace Shield system is to be revised to use Hughes AMD-44 workstations, Hughes HDP-6200 large screen displays, a modern data processing architecture, and far more advanced software. It will evidently adapt the concept of layered defense that Saudi Arabia developed during the Iran-Iraq War. There will be a patrol line like the Fahd Line near the center of the Gulf, or covering the forward area on other borders, a scramble line where aircraft on alert take off the moment an intruder comes close, and inner defense lines covered by its Improved Hawk missiles.

Saudi Arabia also purchased a third C³I/BM integration and system in March, 1989, called Falcon Eye. This is a tactical radar system which involves the supply of Westinghouse AN/TPS-70 radars with related computers, software, communications systems, and systems integration, and is to be managed by Ferranti. Falcon Eye is supposed to integrate data from ground rangers and the E-3A force, and be down linked to the 12 Skyguard/Gun King batteries in the Air Defense Corps. It is also supposed to be compatible with Peace Pulse and Peace Shield. The first phase of the system was supposed to become fully operational in 1992.

The success of the Peace Shield and Falcon Eye systems will be critical to determining how well the Corps can absorb the Patriot missile units Saudi Arabia is buying. It will not be operational until February, 1996, however, versus the original date of 1993. Like all of Saudi Arabia's sophisticated air systems, it will also be heavily dependent on U.S. technical assistance (and de facto assistance in operating the weapons) until well after the year 2000.¹⁰⁹

More generally, the question arises as to whether the existence of a separate Air Defense Corps is the right long term solution to Saudi Arabia's military needs. The

¹⁰⁸ Jane's Defense Weekly, July 15, 1989, p. 57, January 19, 1991, July 20, 1991, p. 97; London Financial Times, July 5, 1991, p. 5; Flight International, July 23, 1991, p. 18.

¹⁰⁹ Jane's Defense Weekly, January 19, 1991, July 20, 1991, p. 97; London Financial Times, July 5, 1991, p. 5; Flight International, July 23, 1991, p. 18.

existence of a separate Saudi Air Defense Corps does help reduce the chances of any kind of coup attempt by creating a separate check on air force operations, but its ability to fight in defensive positions against superior forces will depend heavily on the quality of its air cover, the ability of the Saudi Air Force to link its operations with those of the army, and its ability to provide close air and interdiction support. In the long run, integrating smaller and mobile systems into the army, and the larger missiles and C³I system into the air force, might be more successful.¹¹⁰

Further, Saudi Arabia clearly needs to integrate its system with that of Kuwait and Bahrain. This is crucial to both Saudi Arabia's future security and the ability of the West to reinforce Bahrain and Kuwait effectively because of their small size and air space. Kuwait is particularly vulnerable because it shares a common border with Iraq, and proximity to Iran, and desperately requires a survivable air defense and land and maritime surveillance system. No Kuwaiti-based system can provide such characteristics unless it is integrated into a Saudi system, preferably with close links to Bahrain, Qatar, and the UAE.

Saudi Paramilitary Forces

Saudi Arabia has several important paramilitary forces in addition to its National Guard. This reflects a system of layered forces designed to protect the regime. The regular army provides external security but is kept away from urban areas. The National Guard provides security from loyal tribes and groups under a different chain of command. There is a separate Frontier Force, and the Ministry of Interior and other groups provide internal security at the political and intelligence levels. The Frontier Force has done much of the fighting with Yemen in recent years, and has taken some significant casualties.

The 10,500 man Frontier Force covers Saudi Arabia's land and sea borders. It performs a host of patrol and surveillance missions, is equipped with four wheel drive vehicles and automatic weapons, and can act as a light defensive screen. About 4,500 men in the Frontier Force are assigned to a Coast Guard. The Coast Guard is equipped with two Salwa-class SA26 patrol boats, four Al Jouf-class inshore medium patrol craft, 15 Scorpion-type coastal patrol boats, 12 Rapier-type coastal patrol boats, 50 Huntress-type inshore patrol boats, 16-24 BH.7 and SRN.6 Hovercraft, the Royal Yacht and numerous small boats. It is unclear how many of these craft and boats are fully operational.¹¹¹

¹¹⁰ The Saudi Air Defense Corps renewed its contract for technical assistance support from Raytheon for its IHawk surface-to-air missiles in May, 1986. This contract has been running since 1976, and was renewed for three years at a cost of \$518 million. *Jane's Defense Weekly*, 7 June, 1986, p. 1019.

¹¹¹ See *Jane's Fighting Ships*, IISS, *Military Balance, 1992-1993*, pp. 120-121; *Military Technology, World Defense Almanac, 1992-1993*, Vol. XVII, Issue 1-1993, ISSN-0722-3226. pp. 157-159.

Saudi Arabia is considering building a border surveillance system that would use patrol aircraft, remotely piloted vehicles, and early warning systems to detect intruders and border crossings. There would be a 12 kilometer deep security zone around all 6,500 kilometers of the land and sea borders, with a mix of acoustic, seismic, radar, magnetic, and infrared sensors to detect movements of men and vehicles in the border area. It would be supported by small manned patrol aircraft, and unmanned remotely piloted vehicles whether there might be some threat from the intruder. Thompson CSF completed a \$5 million feasibility study for this system in early 1990, and two consortiums -- one by led by E Systems and one led by Thompson CSF -- submitted bids to Saudi Arabia in May, 1991. The estimated cost of the system is around \$3 billion and it would take several years to complete. A Saudi decision is expected in 1994.¹¹²

There is a Special Security Force with 500 men and UR-416 APCs. Little is known about this force which seems to be designed to deal with terrorism and hijacking. There is a large special investigations force something like the British CID, but with political as well as criminal justice functions. There is also an royal intelligence office, with some security and anti-terrorism functions, under Prince Turki al-Faisal. Finally, Saudi Arabia has a large Gendarmerie or national police force with more than 15,000 men.

It is impossible for an outsider to appraise the effectiveness of these forces, or even identify their precise functions. It should be noted, however, that Saudi Arabia is not a particularly repressive society, and tolerates a great deal of highly vocal dissent. It shows no tolerance for organized violence.

Saudi Missile Capabilities and Weapons of Mass Destruction

The most controversial development in Saudi forces is the purchase of Chinese CSS-2 (DF-3) long range surface-to-surface missiles, which are deployed as part of the Air Defense Force. The Saudis have bought a package of anywhere from 20 to 50 missiles and support at a cost of about \$3 billion to 3.5 billion, although most estimates put the number at 20-24 missiles and 10-12 launchers.¹¹³

The CSS-2 missiles sold to Saudi Arabia have a special large conventional warhead, which cut the range of the missile below its normal range of 1,550 nautical miles. The CSS-2 still has a range of over 1,000 NM. At the same time, it has a nominal CEP of 1.2

¹¹² Defense News, November 11, 1991, p. 36; Washington Technology, September 24, 1992, p. 1.

¹¹³ Defense News, April 8, 1991, p. 1; Defense and Foreign Affairs Weekly, November 28, 1988, p. 1; Washington Post, September 20, 1988, p. A-8; Jane's Defense Weekly, October 1, 1988, pp. 744-755.

NM and lacks the accuracy to hit anything other than large area targets like cities. Even with its improved warhead, each missile will only have an effective lethality about three to four times greater a single 2,000 pound bomb. The missile is also an obsolescent design that requires a large amount of highly trained technical support, is difficult to fuel, and probably takes a long time to site, fuel, and target.

The CSS-2 missiles are mobile, but have been deployed to fixed sites. They are currently deployed in two battalions. One is located at the As-Sulayyil Oasis, roughly 475 kilometers south to southwest of Riyadh. As-Sulayyil is also to be the site of one of Saudi Arabia's new air bases for its Tornado fighter-bombers. A second battalion is located at Al-Juaifer near the Al-Kharj air base south of Riyadh. Another site or training facility seems to exist in southwestern Saudi Arabia at a place called al-Liddam.

Commercial satellite photos of the site at As-Sulayyil show a headquarters and transportation complex with 60 buildings or tents; a transportation center; a command and control complex with roughly 40 buildings and tents; a secure area; a construction area; a bunker which may be a fixed launcher site; other launch areas with bunkers for missile storage; an additional launch area, and three 150 meter-long white buildings that may be missile assembly facilities.¹¹⁴

The Saudis cannot maintain or fire the missiles without Chinese technical support, and Chinese technicians are operating the missiles under Saudi supervision. Ballast Nedam, a subsidiary of British Aerospace, has recently extended the runway at the As-Sulayyil air base to 3,000 meters. There are some signs that Saudi Arabia may be deploying surface-to-air missiles to defend the facility.¹¹⁵

None of the Saudi missiles are now armed with weapons of mass destruction. Saudi Arabia is a signatory to the Non-Proliferation Treaty, and Saudi Arabia and the government of the PRC have provided U.S. officials with assurances that the missiles will remain conventional. The Saudi government has provided a written statement that, "nuclear and chemical warheads would not be obtained or used with the missiles." U.S. experts believe that Saudi Arabia has kept its word, although the Saudis have refused a U.S. request to inspect the missile sites in Saudi Arabia.¹¹⁶

There are good reasons to question the value of such missiles as long as they only have conventional warheads.¹¹⁷ The CSS-2s deployed in the PRC are all nuclear-armed missiles,

¹¹⁴ Jane's Defense Weekly, October 1, 1988, pp. 744-755.

¹¹⁵ Jane's Defense Weekly, October 1, 1990, pp. 744-746.

¹¹⁶ Washington Times, October 4, 1988, p. A-2; Christian Science Monitor, October 8, 1988, p. 2.

¹¹⁷ Shuey, Lenhart, Snyder, Donnelly, Mielke, and Moteff, Missile Proliferation: Survey of Emerging

which can carry one to three megaton warheads. They have a maximum range of about 2,200 miles (3,500 kilometers), an inertial guidance system, and a single-stage refrigerated liquid fuel rocket motor. The version of the CSS-2 that the PRC has sold to Saudi Arabia is heavily modified and has a special large conventional warhead, weighing up to 3,500 to 4,000 pounds. This added warhead weight cuts the maximum range of the missile to anywhere from 1,550 nautical miles (2,400 kilometers) to 1,950 nautical miles (3,100 kilometers).

A conventional warhead of this size is more effective than the warhead on a Scud, but is scarcely a weapon of mass destruction, or even an effective conventional weapon. Assuming an optimal ratio of HE to total weight, the warhead of the CSS-2 could destroy buildings out to a radius of 200-250 feet, seriously damage buildings out to a radius of 300-350 feet, and kill or injure people with projectiles to a distances of up to 1,000 feet.¹¹⁸ This is substantially less destructive power than would result from a single sortie by a modern strike fighter.

The CSS-2 has other limitations. It is an obsolete missile that was first designed in 1971. While an improved version has deployed, most experts still estimate that the missile has a CEP of nearly two to four kilometers, and lacks the accuracy to hit anything other than large area targets like cities or industrial facilities. Even then, the improved warhead, each missile would still only have the effective lethality of a single 2,000 pound bomb. It requires large amounts of technical support and ground equipment, and takes hours to make ready for firing.¹¹⁹

The Saudi purchase of the CSS-2 thus raises serious issues on several grounds:

Missile Forces, Washington, D.C., Congressional Research Service, Report 88-642F, February 9, 1989, pp. 64-65.

¹¹⁸ The warhead could also be enhanced with submunitions, a proximity fuse to detonate before impact to give an optimum burst pattern and widen the area covered by shrapnel, and a time delay fuse to allow the warhead to fully penetrate a building before exploding. Shuey, Lenhart, Snyder, Donnelly, Mielke, and Moteff, Missile Proliferation: Survey of Emerging Missile Forces, Washington, D.C., Congressional Research Service, Report 88-642F, February 9, 1989, pp. 23-24.

¹¹⁹ U.S. experts have never monitored a test of the conventional version of the missile. CEP stands for circular error probable, and is an indication of a missile's accuracy. The figure represents the radius of a circle in which half the warheads are expected to fall. It should be noted, however, that the theoretical figures applies only to missiles that operate perfectly up to the point which the missile has left the launcher and at least is first booster and guidance system are operating perfectly. Operational CEPs can only be "guesstimated", but will be much lower. Missiles generally do not have fail-safe warheads. A substantial number will have partial failures and deliver their warhead far from their intended targets. Jane's Defense Weekly, Oct 1, 1990, pp.744-746; Fred Donovan, "Mideast Missile Flexing", Arms Control Today, May, 1990, p.31; Shuey, Lenhart, Snyder, Donnelly, Mielke, and Moteff, Missile Proliferation: Survey of Emerging Missile Forces, Washington, D.C., Congressional Research Service Report 88-642F, Feb 9, 1989.

- o A very costly weapons system is being procured in very small numbers with very low lethality.
- o As now configured, the missile system may do more to provoke attack or escalation than to deter attack or provide retaliatory capability;
- o On the other hand, Saudi acquisition of chemical or nuclear warheads would radically improve the value of the system as a deterrent or retaliatory weapon.

At this point in time, the CSS-2 at best acts as a low level deterrent and as a symbol of Saudi Arabia's willingness to retaliate against Iraqi and Iranian strikes. At worst, it is seen as a potential excuse for Iranian or Iraqi missile strikes, and its use could trigger a process of retaliation against which Saudi Arabia would have little real defense capability. Israel, which initially showed great concern about the system, no longer seems to see it as any kind of direct threat. It has the capability to launch air strikes against the Saudi missile sites, but is unlikely to consider preemptive strikes unless radical changes take place in Saudi Arabia's political posture or regime.

The CSS-2 also presents a potential problem arms control. Long term Saudi motives will remain uncertain to its neighbors so in spite of intelligence reports and any inspection agreements. Other countries have an added incentive and excuse in joining the missile arms race, acquiring weapons of mass destruction, or preempting in a conflict. While the Saudi purchase of the CSS-2 is an understandable reaction to such problems as Israeli nuclear capabilities, the search for prestige, the Iran-Iraq missile war, and a desire to assert Saudi independence from the U.S., the net result may ultimately do Saudi Arabia more harm than good.¹²⁰

Strategic Interests and Arms Control

Saudi Arabia is not strong enough to serve as a proxy for Western military forces or as a "pillar" of Western security. It has many of the vulnerabilities of its smaller neighbors, and it can only achieve security through a combination of cooperative defense efforts with its neighbors and the West. At the same time, Saudi Arabia has the wealth and the population to act as the core of the GCC's efforts to build regional security. Further, it is

¹²⁰ Wall Street Journal, April 4, 1988, p. 13; Arms Control Today, May, 1988, p. 24; New York Times, April 26, 1988, p. A-10; Los Angeles Times, May 4, 1988, p. I-7; Washington Times, May 4, 1988, p. 8; Washington Post, March, 1988, p. 1.

large and strong enough so that Western military forces can remain over the horizon in many contingencies, and limited amounts of Western reinforcement should be adequate in most contingencies.

Unfortunately, Saudi Arabia currently lacks a viable plan to develop its own forces, and any clear plans for either cooperation with its Gulf neighbors or the United States. The failure of the Damascus Declaration to produce any Egyptian or Syrian forces in the Gulf means that it would take weeks, and perhaps months, for combat capable Arab forces from outside the Gulf to deploy for war against a threat like Iraq. Similarly, the Gulf Cooperation Council's failure to agree on any specific plans for cooperation, interoperability, and integration has left Saudi Arabia without militarily effective allies in the Gulf.

The problems are equally serious in the case of Saudi cooperation with the West. Saudi Arabia did reach a tentative agreement for common training with U.S. forces in September, 1991. For reasons that will be discussed shortly, however, it rejected U.S. proposals to preposition two division sets of ground combat equipment in Saudi Arabia, although the U.S. could have left such equipment there when U.S. forces completed their withdrawal from the Gulf at the end of 1991.¹²¹ This was an understandable reaction to the U.S. failure to guarantee Saudi Arabia arms and training to expand its own forces, to U.S. demands for a status of forces agreement ceding some aspects of Saudi sovereignty, and pressure from Islamic fundamentalists to avoid any outside deployment on Saudi soil. It did, however, place serious limits on U.S. reinforcement capabilities.

Saudi Arabia has, however, tentatively agreed to expand the 15-year old Military Training Mission Treaty it signed in 1977. The U.S. has proposed arrangements under this treaty that would store up to 200 M-1A2s and 200 M-2s in the Kingdom, plus spare parts and enough Air Force equipment to support five to six fighter wings. This would only be one-third of the amount of pre-positioned equipment that the U.S. originally proposed, and the arrangement is evidently dependent on Saudi views after the U.S. presidential election and talks with the new Administration. It would, however, allow the U.S. to deploy a sustainable heavy division to Saudi Arabia in less than 30 days.¹²²

¹²¹ At one point, the U.S. seems to have considered a plan to preposition enough equipment for an entire Corps of three divisions and 150,000 men. New York Times, October 15, 1992, p. A-1.

¹²² Jane's Defense Weekly, September 14, 1991, p. 452, November 2, 1991, p. 793, January 25, 1992, p. 107, April 4, 1992, p. 549; New York Times, October 13, 1991, p. A-1; Los Angeles Times, August 5, 1991, p. 4; October 22, 1991, A-3; Washington Post, October 20, 1991, p. 1; March 17, 1992, p. 35, May 31, 1992, p. A-10.

The uncertainties in U.S.-Saudi strategic cooperation are also illustrated by the fact that Saudi Arabia also asked the U.S. to halt the deployment of aircraft to Saudi Arabia from the U.S. in September, 1991, when it seemed that the U.S. might have to use force to make Iraq comply with all the terms of its cease-fire agreement with the UN. However, Saudi Arabia changed this position in August, 1992, when the U.S., U.K., and France established a "no fly" zone over Iraq. Saudi Arabia not only allowed U.S. aircraft to operate, but provided refueling tankers, combat air defense patrols, and support from Saudi AWACS. This support was critical to the U.S., Britain, and France since it allowed them to establish the "no fly zone" over Iraq with less than 150 aircraft. They would have had to provide roughly 100 more aircraft without Saudi support.¹²³

At the other end of the issue, the West has not shown that it can provide Saudi Arabia with the right arms transfers, training, and support effort. The U.S. still experiences major problems because of domestic political debates over the impact of such arms transfers on the security of Israel, and European suppliers often profiteer, rather than ensure suitable packages of training and support. If Saudi Arabia has been slow to lay the foundation for effective efforts at common defense, so has the West.

Further, the West has often been slow to understand the Saudi emphasis on informal cooperation and low profile activities. Saudi internal and external stability depends on keeping strategic cooperation as quiet as possible, while the U.S. has been particularly insistent on formal and public arrangements. This U.S. insistence hurt both the U.S. and Saudi Arabia after the Gulf War. Saudi Arabia offered to allow U.S. Army prepositioning of major armor, artillery, and other equipment in Saudi warehouses at Saudi cost and under joint U.S.-Saudi Guard. The U.S. insisted on a formal status of forces agreement, flying the U.S. flag, total U.S. control of the facility, and large numbers of U.S. personnel. It also presented the U.S. plan complete with long computer lists of additional equipment.

The Saudis rejected the U.S. plan both because of the way in which it was presented, and because the U.S. insistence on an overt basing facility openly violated the royal family's pledge to the Islamic clergy not to grant bases or formally base non-Muslim forces in the Kingdom. It also meant a nearly certain crisis with hard-line Islamic fundamentalists.

Saudi Arabia prefers to use a similar degree of indirection in modernizing, supporting the Arab-Israeli peace process, and limiting the influence of Arab and Islamic radicals. The West and Israel prefer formal and visible arrangements. Israel has often made the mistake

¹²³ It should be noted that the U.S. already had 300 combat aircraft in Saudi Arabia and 150 on two carriers, and that Saudi Arabia objected to additional deployments, not to cooperation with the U.S. New York Times, September 25, 1991, p. A-14, September 27, 1991, p. A-1, September 30, 1991, p. A-5.

of treating Saudi Arabia and other moderate and conservative Arab states as enemies, and insisting on formal arrangements as signs of progress. It is important that both the West and Israel understand that Saudi Arabia must preserve its Islamic character, avoid provoking Arabic radicals, and minimize the risk of confrontation with Iran, Iraq, and Syria. Informal success is always preferable to formal failure, but this is a lesson that the U.S. and Israel find very difficult to learn.

Similar problems emerge out of Western efforts to pressure Saudi Arabia and the other Gulf states towards Western-style democracy, legal systems, and secular approaches to social change. The Saudi royal family, like every royal family in the southern Gulf, could do more to move towards representative institutions, improve civil rights, and establish a rule of law. The West needs to understand, however, that the Saudi royal family and most Gulf royal families can only advanced change as fast as their societies accept it. In Saudi Arabia, for example, there is already a major fundamentalist reaction to the existing rate of change, and accelerating change or any kind of elections would like to conservative reaction, not progress.

Similarly, the West must be very careful to distinguish between the hopes and desires of Western educated Gulf professionals and reality. In the case of Saudi Arabia, there are many instances of corruption and the abuse of civil law within the royal family. However, the history of the Saudi professional and middle class -- particularly the Hijazi that are often critics of the royal family -- is scarcely better. The same is equally true of the clergy, in part because of the archaic methods of religious funding and taxation still used throughout much of Islam. Demanding change is very different from the ability to achieve real progress.

These problems will not prevent Saudi Arabia from slowly improving its military capabilities, but they do mean that any major progress in collective or cooperative defense efforts will be slow and as dependent on changes in Western attitudes as on changes in the attitudes of Saudi Arabia. Equally important, a continuing Saudi failure to reach any agreement with the U.S. to preposition equipment and munitions on Saudi soil, or buy equipment U.S. forces could use in an emergency, would prevent Saudi Arabia and Kuwait from ensuring that U.S. land forces can deploy to the northern Gulf in time to defend either country against an invasion by Iraq. Similarly, the current limits on U.S. and Saudi cooperation seriously inhibit the ability to create effective air and maritime reinforcement capabilities to deal with a threat from either Iran or Iraq.

Kuwait¹²⁴

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 8 | - | - | 192 | 3 | - |
| 1973 | 14 | 100 | 34 | 334 | 4 | - |
| 1982 | 13 | 275 | 36 | 1,179 | 110 | - |
| 1988 | 15 | 275 | 36 | 1,340 | 190 | - |
| 1991 | 8 | 250 | 42 | 13,100 | - | - |

¹²⁴ The military manpower, force strength, and equipment estimates in this section are made by the author using a wide range of sources, including computerized data bases, interviews, and press clipping services. Most are impossible to reference in ways of use to the reader. The force strength statistics are generally taken from interviews, and from the sources reference for each paragraph. The data for the pre-Gulf War estimates draw heavily also draw heavily on his The Gulf and the Search for Strategic Stability (Boulder, Westview, 1984) and The Gulf and the West (Boulder, Westview, 1988).

Extensive use has also been made of the annual editions of the International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition, and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv), especially the 1989-1990 edition and working materials from the coming edition. Material has also been drawn from computer print outs from NEXIS, the United States Naval Institute data base, and from the DMS/FI Market Intelligence Reports data base. Other sources include Jane's Defense Weekly, December 14, 1991, p. 1174, March 28, 1992, pp. 528-531; New York Times, January 14, 1992, p. 4; London Financial Times, July 8, 1991, p. 3, January 7, 1992, p. 4; Defense News, February 10, 1992, p. 38; Theodore Craig, "Kuwait: Background, Restoration, and Questions for the United States," Congressional Research Service, 91-288F, May 21, 1992; Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Washington, Department of Defense, April, 1992, pp. 2-10; Military Technology "World Defense Almanac for 1991-1992," published in early 1992; Foreign Affairs Division, "Middle East Arms Control and Related Issues," Washington, Congressional Research Service, 91-384F, May 1, 1991; and Middle East Economic Digest, "MEED Special Report: Defense," Volume 35, December 13, 1991.

Weapons data are taken from many sources, including computerized material available in NEXIS, and various editions of Jane's Fighting Ships (Jane's Publishing); Jane's Naval Weapons Systems (Jane's Publishing); Jane's Armor and Artillery (Jane's Publishing); Jane's Infantry Weapons (Jane's Publishing); Jane's Military Vehicles and Logistics (Jane's Publishing); Jane's Land-Base Air Defense (Jane's Publishing); Jane's All the World's Aircraft (Jane's Publishing); Jane's Battlefield Surveillance Systems, (Jane's Publishing); Jane's Radar and Electronic Warfare Systems (Jane's Publishing); Jane's C³I Systems (Jane's Publishing); Jane's Air-Launched Weapons Systems (Jane's Publishing); Jane's Defense Appointments & Procurement Handbook (Middle East Edition) (Jane's Publishing); Tanks of the World (Bernard and Grafe); Weyer's Warships (Bernard and Grafe); and Warplanes of the World (Bernard and Grafe).

Other military background, effectiveness, strength, organizational, and history data are taken from Anthony H. Cordesman, The Gulf and the Search for Strategic Stability, Boulder, Westview, 1984, The Gulf and the West, Boulder, Westview, 1988, and Weapons of Mass Destruction in the Middle East, London, Brassey's/RUSI, 1991; Anthony H. Cordesman and Abraham Wagner, The Lessons of Modern War, Volume II, Boulder, Westview, 1989; the relevant country or war sections of Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991; Department of Defense and Department of State, Congressional Presentation for Security Assistance Programs, Fiscal Year 1993, Washington, Department of State, 1992; various annual editions of John Laffin's The World in Conflict or War Annual, London, Brassey's, and John Keegan, World Armies, London, Macmillan, 1983.

Kuwait has some of the richest oil resources in the world. It produced a total of about 27 billion barrels of oil by the end of 1990, and had an extremely high reserve to production ratio of 194/1.¹²⁵ As of January 1, 1992, it had estimated proved oil reserves of up to 97 billion barrels, with probable reserves of at least 4 billion more, and gas reserves of 48,000 billion cubic feet. It had about 12% of the world's total oil reserves, and produced at a rate of about 1.01 million barrels per day during 1990, before the Iraqi invasion.¹²⁶ In contrast to oil, Kuwait has only about 0.01 cubic kilometers of internal renewable water resources, which is extremely low, and which amounts to about 10 cubic meters per person, one of the lowest levels of any nation in the world.¹²⁷

Kuwait began its history in the early 1700s as a small fishing village at the Western end of the Gulf, when a number of families from the Anayza tribe in Saudi Arabia emigrated into the area. The original settlers appointed a member of the Sabah family as Sheik in 1756, and it has been ruled by the Al-Sabah family ever since. Kuwait did come under limited Ottoman rule, and paid tribute to the Ottoman empire. The Sheik of Kuwait accepted the title of provincial governor from the Ottomans in 1871, but Kuwait retained a high degree of independence until it came under British protection in 1881. Kuwait successfully sought full British protection in 1899, when the Ottoman Empire attempted to assert control over Kuwait. This led to an agreement that Kuwait would not permit any other government to send agents or representatives and Britain appointed a political agent in 1904. Britain negotiated a treaty regularizing this relationship with Turkey in 1913, but this treaty was never ratified because of World War I.

Kuwait remained little more than a village until the end of the 1920s. It kept its independence during the period of Saud conquest because of British diplomatic action. In 1922, Sir Percy Cox, the British agent called together the representatives of Kuwait, its newly formed League of Nations mandate called Iraq, and Saudi Arabia (then the Sultanate of Najd). These negotiations led to the Treaty of Muhammara (May 1, 1922) and the Protocol of Uqayr (December 2, 1922). These agreements laid the boundaries of modern Kuwait, although Kuwait lost a significant amount of territory occupied by pro-Kuwaiti Bedouin to Saudi Arabia.

¹²⁵ Oil and Gas Journal, September 23, 1991, p. 62.

¹²⁶ OJJ Special, Oil and Gas Journal, December 30, 1991, pp. 43-49; Other estimates indicate 97 billion barrels of proven reserves and 4 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the Oil and Gas Journal, September 23, 1991, p. 62. These estimates have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerates its reserves and relative importance.

¹²⁷ Los Angeles Times, January 28, 1992, p. C-1.

At the time of these negotiations, Kuwait lacked water and significant port facilities, and its economy was tied to fishing and pearling. Kuwait's economy was devastated when Japan introduced cultured pearls, and Kuwait might have disappeared as a significant political and economic entity, except for the discovery of oil in the 1930s. Oil revitalized the Kuwaiti economy and started its gradual transformation into one of the world's most wealthy city states. It raised Kuwait's population from around 75,000 in the late 1930s to over two million when the Gulf War began.

Kuwait's history was relatively peaceful between the discovery of oil and the time it achieved independence from Britain in 1961. Saudi Arabia did not press any of its claims to disputed territory and offshore drilling areas. Iraq recognized Kuwait's independence in 1932 and did not challenge Kuwait's sovereignty while the Iraqi monarchy remained tied to British support and influence.

The Iraqi monarchy fell in 1958, however, and Britain withdrew from the Gulf in 1961. Kuwait became fully independent on June 19, 1961. Only a week after the withdrawal of British forces, Iraq made claims to Kuwait which were based on tenuous rights as the inheritor of the Ottoman Empire. Iraq moved troops towards the border. It only halted when Britain rushed troops back into the country, and when it became the Arab League was prepared to challenge its claims.

This Iraqi pressure and fear of Arab socialism helped lead the Al Sabah family to issue Kuwait's first constitution in November, 1962, establishing the Emir as a hereditary monarch, an Emir's Council and a popular National Assembly with the electorate limited to the descendants of Kuwait's population in 1920. The National Assembly was allowed to operate from 1963 to 1976, and again from 1981 to 1986. The Al-Sabah family suppressed the Assembly in 1976 because of growing political radicalism and pressure from Saudi Arabia, which opposed any popularly elected forum at that time. It suppressed the Assembly in 1986 because of its growing desire for increased power, debates over stock market fraud and corruption involving the royal family, and debates that threatened to increase tension with Kuwait's neighbors.

Kuwait also adopted a policy of negotiating with any power that threatened it, and of attempting to use its oil wealth to compensate for its military weakness. It gave money to the PLO and aid to other Arab states. It provided funds to Syria and Iraq, supported Arab trade and oil embargoes, and terminated its treaty with Britain in 1971, in an effort to show it no longer had colonial ties. It bought military equipment from the U.S. and Europe, but established relations with the Soviet Union in 1963, and eventually bought Soviet arms in

an effort to minimize the risk of hostile Soviet pressure. Over the years, this policy of buying off the threat became the foundation of Kuwait's security.

These policies helped Kuwait reach a border agreement with Iraq in 1963, and to allow Kuwait to get the votes in needed to join the UN. Nevertheless, Iraq continued to make sporadic claims to Kuwait, and never formally abandoned its claims to the Kuwaiti islands of Bubiyan and Waribah. These islands are on the northeastern edge of the Kuwaiti-Iraqi border. They control the channel to Iraq's only direct access to the Gulf and its naval base at Umm Qasr, and are near its oil loading terminal in the Gulf off Faw.

Iraq again threatened Kuwait in 1965, 1967 and 1972. It occupied Kuwait's border post at Samita on March 20, 1973, in a further effort to put pressure on Kuwait to cede it control of the islands in the Gulf. This led to the deployment of Saudi troops to the border. Iraq withdrew in early April, but only after mediation by Yasser Arafat and a substantial Kuwaiti bribe to Iraq. Iraq then attempted to leave Waribah and half of Bubiyan in 1975 for a period of 99 year. According to some reports, Iraq briefly sent troops into Kuwait again in 1976, and only withdrew after another Kuwaiti payment.¹²⁸

This situation did not change in the 1980s. Although Kuwait was a critical source of financial aid to Iraq during the Iran-Iraq War, Iraq again sought to lease Bubiyan and Waribah in 1980 and provoked another border incident in 1983. When Kuwait again refused to lease the two islands, Iraq sent a token force across the border. This Iraqi pressure led to a sudden visit to Baghdad by Kuwait Prime Minister Saad Sabah on November 10-13, 1984. Once again, Iraq was bought off by a substantial payment, although Iraq did establish a Hovercraft base across the river from Waribah.¹²⁹

Control of the two islands had become steadily more important to Iraq because it was clear that it was never likely to secure its access to the Gulf through the Shatt al-Arab, which it shared with Iran. Further, the Shatt al-Arab had suffered from 10 years of silting and mining during the Iran-Iraq War. As a result, Iraq had steadily expanded the city of Basra to the south; the town of Az-Bayer, just to the southwest of Basra, and its naval base at Umm Qasr. It had moved south into territory that probably belonged to Kuwait near Umm Qasr and the border town of Safwan, and had expanded a canal called the Shatt al-Basra from Umm Qasar to a position midway between Basra and Al Zubayr . This made

¹²⁸ Alfred B. Prados, "Iraq and Kuwait: Conflicting Historical Claims," Congressional Research Service, 91-34F, January 11, 1991, p. 4.

¹²⁹ Washington Post, December 19, 1987, p. A-27.

the Khor Abd Allah, the channel from the Gulf to Umm Qasr to the north of Bubyian and Waribah steadily more important.¹³⁰

Kuwait also had some minor border problems with Saudi Arabia after independence. In 1966, Kuwait and Saudi Arabia negotiated an end to the neutral zone that had originally been established between them to give nomadic tribes freer access to grazing rights. In August, 1976 Saudi Arabia successfully pressured Kuwait to dissolve its popular assembly, and Saudi Arabia dealt with a dispute over offshore drilling rights by sending troops to occupy the two islands of Umm al-Maradem and Gharo in June, 1977.

In spite of its past difficulties, Kuwait was one of Iraq's most important allies during the Iran-Iraq War. It supplied Iraq with at least \$13.2 billion in grants and loans, and with up to \$22 billion in overall assistance, although Iraq put new pressure on Kuwait to lease Waribah and Bubiyan in 1980.¹³¹ This Kuwaiti support for Iraq created problems between Kuwait and Iran. Iran conducted several overflights and air strikes on Kuwait to try to intimidate it into reducing its support for Iraq. While Kuwait's Shi'ites had been reasonably well integrated into Kuwaiti society, and provided a number of its native technocrats, some fraction of the Shi'ite population did side with Iran during the Gulf War.

These problems grew more severe after 1982, as Iran drove Iraq out of Iran and counter-attacked into Iraq, and as Iraq became more dependent on Kuwaiti financial aid and the transshipment of goods from Kuwait. On December 12, 1983, Shi'ites bombed the French and U.S. embassies and 17 Shi'ites were later convicted of the bombing. In May, 1985, pro-Iranian Shi'ites attempted to assassinate the Emir of Kuwait, and Iran's conquest of Faw in 1986 brought it within striking distance of Kuwait. Pro-Iranian Shi'ites bombed Kuwait's oil facilities in June 1986, and in January, April, May, and June of 1987.

These threats to Kuwait were a key factor that led it to seek U.S. and Soviet assistance in reflagging its tankers. Although Kuwait joined the Gulf Cooperation Council (GCC) when it was formed in May, 1981, this did little to improve its security. While the GCC created a Peninsular Shield Force in the mid-1980s that was supposed to have 10,000 men, the reality was little more than a reinforced Saudi brigade based at Hafr al-Batin with no real mobility and sustainability. As a result, when Iran began to strike at Kuwaiti and

¹³⁰ Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Washington, Department of Defense, April, 1992, pp. 6-7.

¹³¹ American Arab Affairs, Fall 1989, p. 30; Los Angeles Times, December 2, 1990, pp. M-4 and M-8; Theodore Craig, "Kuwait: Background, Restoration, and Questions for the United States," Congressional Research Service, 91-288F, May 21, 1992, p. 9.

southern Gulf tankers -- in an effort to compensate for Arab support of Iraq and Iran's strikes on Iran's oil facilities and tanker traffic -- Kuwait was forced to turn to the West.

It played upon U.S. fears of Soviet influence in the Gulf and an Iranian victory in the Gulf War to obtain U.S. agreement to "reflag" Kuwaiti tankers with the U.S. flag and provide U.S. Navy escorts. This reflagging led to U.S. military confrontations with Iran during 1987 and 1988, and played a significant role in Iran's eventual defeat.

As has been discussed in the previous chapter, however, Kuwait earned little gratitude from Iraq. Iraq had emerged from the Iran-Iraq War as a kind of victor, but it had won because of some \$37 billion in loans from Kuwait and its other Arab neighbors, and massive loans from the West and other countries. By late 1989, Iraq desperately needed to rescheduled these loans. The required principal and interest on the non-Arab debt alone would have consumed half of Iraq's \$13 billion in annual oil revenues. At the same time, Iraq had a military budget of \$12.9 billion in 1990, or approximately \$700 per citizen in a country with a per capita income of \$1,950.¹³²

Iraq demanded forgiveness of its Arab loans during 1988 and 1989, and called for new grant aid as the sole defender of the Arab cause against Persia. It made new requests to lease Waribah and parts of Bubiyan island in 1989, and rejected the attempts of Kuwait's Emir to reach a general border settlement when he visited Iraq in September, 1989.¹³³ By mid-1990, when Iraq's cash reserves were only equal to three months of imports and inflation was running at 40%, Iraq decided on war. Saddam Hussein accused Kuwait of "stabbing Iraq in the back" and Iraqi foreign minister Tariq Aziz claimed that Kuwait had, "implemented a plot to escalate the pace of gradual systematic advanced toward Iraqi territory. The Kuwait government set up military establishments, police posts, oil installations, and farms on Iraqi territory."¹³⁴ Iraq claimed that Kuwait and the UAE were conspiring to keep oil prices low and were violating their oil quotas, and that Kuwait was stealing oil from the Rumalia oil field, whose southern tip enters Kuwaiti territory. The end result was Iraq's invasion of Kuwait on August 2, 1990, and the Gulf War.

Kuwait's military role in the Gulf War will be summarized shortly, but the liberation of Kuwait has scarcely created a lasting basis for its security. The war has almost certainly

¹³² Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Washington, Department of Defense, April, 1992, pp. 3-4.

¹³³ Alfred B. Prados, "Iraq and Kuwait: Conflicting Historical Claims," Congressional Research Service, 91-34F, January 11, 1991, p. 4.

¹³⁴ FBIS NES-90-138, Jul 18, 1990, p.21; Theodore Craig, "Kuwait: Background, Restoration, and Questions for the United States," Cong Research Service, 91-288F, May 21, 1992, p.8; Dept of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Wash, Dept of Defense, Apr, 1992, pp.2-10.

left a legacy of lasting Iraqi irredentism. The efforts to firmly demarcate the Kuwaiti-Iraqi border may also lead to moving it north. There is no firm historical record of the border marking points, which consisted of a long vanished border and a field of date palms at Safwan that Iraqi farmer steadily expanded south after the marking of the border in 1923. If the border is corrected to go back to the original line, this would firmly secure Kuwait's control over the Ratga oil field on its northern border, but it would also give Kuwait control over more of the Rumalia oil field, and threaten Iraqi access to the port facilities at Umm Qasr.¹³⁵

The tensions between Kuwait and Iran have eased since the 1988 cease-fire in the Iran-Iraq War, and relations have improved because of Iran's tacit support of Kuwait in the Gulf War. There is still, however, tension between Kuwait's dominant Sunnis and its Shi'ites. There is a festering debate over the sentencing and treatment of Shi'ites arrested for bombing incidents, there has been continuing discrimination against Shi'ites without good political connections, and the ruling Al Sabah family has allowed the political police, internal security forces, and royal intelligence to investigate and arrest individual Shi'ites.

Kuwait has ruthlessly driven many of its nearly 400,000 pre-war Palestinian and Jordanian workers out of the country because of the support the PLO and Jordan gave to Iraq during the Gulf War. Others have been arrested and executed since the Gulf War by the Kuwaiti government with little real evidence, or tortured or killed by Kuwaiti vigilantes that had at least the initial tolerance of the government. Only about 7,000 had work permits in May, 1992. The may someday lead to Jordanian or PLO reprisals.¹³⁶

The ruling Al Sabah family also faces serious questions about its leadership from many native Kuwaiti Sunnis. The royal family did nothing to prepare the country for war, and key members showed little leadership during the initial fighting once Iraq invaded. Most of the leadership during the war came from the professional military and foreign advisors, and from a resistance movement that organized largely on its own. The Emir, Sheik Jaber al-Ahmed, showed no leadership after the war, returning only slowly and putting the repair of his palace before the needs of the people. He also gave little recognition to the Kuwaiti resistance, treating it as more a threat to the regime than an aid to the country. Kuwait has

¹³⁵ The border was laid out relatively quickly by a single British agent, Major John More, and no follow-up effort was made to create a formal survey or border markings. Economist, February 29, 1992m p. 45; Philadelphia Inquirer, February 20, 1992, p. A-16; Wall Street Journal, December 5, 1991, p. A-1.

¹³⁶ London Financial Times, February 26, 1992, pp. III-1 to III-3. The Sunday Times, January 19, 1992, p. 1; Time, August 5, 1991, p. 32; Washington Times, May 27, 1992, p. A-7.

drawn down heavily on its Fund for the Future, which totaled up to \$100 billion before the war, and the regime has less political ability use money to coopt its opposition.

Kuwait has obligated up to \$65 billion since the Gulf War -- nearly 65% of its invested assets overseas before the war. It has obligated some \$20 billion for repairs and modernization of its oil facilities, and \$20 billion more to repay bad loans -- most stemming from the collapse of Kuwait's fraudulent stock market and owed to or buy families fully able to pay their debts. Kuwait has also made massive arms purchases. As a result, its current budget will have a deficit of \$18 billion out of total spending of \$21 billion, and has borrowed \$5.5 billion from international banks.

Such borrowing may be practical, given the fact that Kuwait will earn at least \$3 billion from oil in 1992 and normally has revenues of \$10 billion. It is also often more economic to borrow than liquidate investments. Kuwait also must restructure much of its infrastructure and housing if it wants to keep its population close to its present 1.2 million (700,000 Kuwaitis), rather than rise back to the 2.5 million level it had before the Gulf War. Nevertheless, the Kuwaiti Royal Family has almost certainly spent far beyond Kuwait's immediate requirements or ability to absorb what it has purchased.¹³⁷

As for other threats, Syria has occasionally backed anti-Iraqi groups operating in Kuwait, and has sometimes made demands for aid that have been tantamount to blackmail. Some local sources claim that both Syria and Iraq sought aid during the 1980s by threats against members of the Royal family.

On the positive side, Kuwait was able to restore much of its economic activity and most urban services by mid-1991. In spite of apocalyptic predictions, the 732 oil well fires Iraq set during its withdrawal did not produce fatal environmental problems, and all were put out by the end of October, 1991. Kuwait was able to begin oil exports and had set a goal of one million barrels per day by mid-1992. By the fall of 1992, the Emir had lifted censorship, and ended most of the more serious abuses of Kuwait's legal system. He had restored most civil rights, and made heavily qualified promises of increased democracy.

Kuwait was scarcely, however, a unified nation and lacked popular leadership. In June, 1992, the speaker of the National Council criticized the American ambassador for "talking about democracy" and "encouraging the local opposition." The Emir blocked plans to organize seminars on elections although the last assembly had been dismissed in 1986, and elections had been scheduled for October, 1992. The voting population was still limited to

¹³⁷ London Financial Times, February 26, 1992, pp. III-1 to III-3. The Sunday Times, January 19, 1992, p. 1; Time, August 5, 1991, p. 32; New York Times, May 4, 1992, p. A-1; Christian Science Monitor, May 29, 1992, p. 8.

men of 21 years or older, who could trace their Kuwaiti residence back to 1920. This represented only 81,400 males out of a total population of 600,000, or 13.5% of the population.

The government's actions did little to ensure support for the regime. In late May, 1928, Kuwaiti businessmen voted for the board of the Chamber of Commerce and Industry. Some 11,500 Kuwait businessmen voted, and 23 of 24 seats went to candidates opposing the current government.

When elections for the 50 man national assembly took place on October 6, 1992, they were fought over the issue of power sharing, the fiscal accountability of the Al Sabah family, and whether an open investigation should be made into the events leading to Kuwait's unpreparedness on August 2, 1990. The voters chose between 278 candidates, most of whom ran as independents. results scarcely created a radical assembly, but it was clear that a large majority seriously questioned the conduct of the royal family, and that even Kuwait's carefully selected sample of voters clearly favored increased democracy.

Nine of the fifty new members were Islamists, seven were associated with Islam, 17 had served in the National Assembly which had been suspended by the emir in 1986, and nine had served in the National Council, a surrogate legislature elected in 1990 by the emir. A total of 35 were Islamists, traditional politicians, and secular liberals who had called for a parliament that could put stronger checks and balances on the government.¹³⁸

Kuwait's Military Vulnerability

Kuwait is one of the most strategically exposed states in the world, and Iraq's invasion of Kuwait was a brutal demonstration of that fact. The bulk of Kuwait's military forces disintegrated during the first hours of Iraq's invasion on August 1, 1990. Kuwait was completely unprepared for the invasion, although several Kuwait commanders had pressed to put its forces on the alert and move them into defensive positions. As a result, much of Kuwait's military equipment was captured and much of the rest was lost or destroyed. Only some of its aircraft, a few vessels, and a limited amount of land equipment escaped to Saudi Arabia.

Even if Kuwait's forces had been prepared, they were far too weak to have withstood Iraq and defend a geographic position as vulnerable as Kuwait. Its total territory is only about 17,800 square kilometers, or roughly the size of New Jersey. Kuwait has a 240

¹³⁸ Chicago Tribune, November 3, 1991, p. I-14; Washington Post, November 7, 1991, p. 1, June 5, 1992, p. A-1, June 6, 1992, p. A-17, October 3, 1992, pp. A-13-14, October 6, 1992, p. A-18, October 7, p. A-27.; Wall Street Journal, October 24, 1992, p. A-2; Joseph P. Rive, "Kuwaiti Oil Well Fires Updated," Congressional Research Service, 91-313, June 26, 1991; Washington Times, May 28, 1992, p. A-7.

kilometer long border with Iraq and a 222 kilometer border with Saudi Arabia. Kuwait's terrain consists largely of slightly undulating desert plains, and has few defensive barriers. The only significant elevation in the country is the Al-Mutla Ridge, just north of the city of Al Jahra, and the pass through this ridge from the north into Kuwait City is the only real defensive position against Iraq. The gorge of Al Batin (Hafr al-Batin) forms only a limited barrier to the West. The one defensive line north of the Bay of Kuwait provides only a limited advantage to the defender, and the road net between Kuwait City and Basra in Iraq allows rapid movement of troops.

Kuwait's only real chance to defend is to be fully deployed along these defensive positions before Iraqi force attack. Kuwait lacks the numbers to ever win a meeting engagement, and the terrain favors the attacker. The desert in Northern Kuwait permits relatively easy movement by armor, and there are a number of highways and road links that fill the area. Kuwait has some 3,000 kilometers of roads, 2,500 kilometers of which are paved. Kuwait is also highly vulnerable to air assault, seven airfields, four of which are paved and have runways 2,400-3,439 meters long. There are many area in Kuwait were paved roads and areas allow rapid movement by helicopter, and the 499 kilometer coastline has many areas where amphibious craft can land.

Kuwait faces equally serious problems in defending Bubiyan and Waribah -- its two large main islands in the salt marshes north of Kuwait. These islands are low lying sand islands with large amounts of salt marsh. They have no particular resources, but they control the channel to Umm Qasr, Iraq's only naval base with direct access to the Gulf. In fact, Iraq attempted to lease or seize these islands several times before it actually occupied them during its 1990 invasion.

Kuwaiti Defense Spending and Arms Imports Before the Gulf War

During the 1980s, Kuwait attempted to deal with this mix of vulnerabilities by relatively high levels of military spending. It spent over \$1 billion annually on defense beginning in the early 1980s, with levels of around \$1.5 billion during 1983-1985 -- when it felt most threatened by Iran. ACDA estimates that Kuwait spent \$766 million on defense in 1979, \$892 million in 1980, \$858 million in 1981, \$1,120 million in 1982, \$1,399 million in 1983, \$1,430 million in 1984, \$1,525 million in 1985, \$1,300 million in 1986, \$1,263 million in 1987, \$1,273 million in 1988, and \$1,964 million in 1989.¹³⁹ This

¹³⁹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table I.

averaged around 5%-6% of its GDP on defense, and 12% to 14% of its central government expenditures.

ACDA estimates that Kuwait imported \$60 million worth of arms in 1979, \$40 million in 1980, \$120 million in 1981, \$110 million in 1982, \$140 million in 1983, \$600 million in 1984, \$350 million in 1985, \$140 million in 1986, \$160 million in 1987, \$210 million in 1988, and \$490 million in 1989.¹⁴⁰

Kuwait's total arms imports during 1981-1985 totaled \$1,005 million, and reflect its policy of buying from many different sources in an effort to obtain broad diplomatic and political support. Roughly \$90 million came from the USSR, \$230 million came from the U.S., \$360 million came from France, \$20 million from the U.K., \$210 million from the FRG, \$80 million from Italy, and \$15 million from other states.¹⁴¹ Its total arms imports during 1984-1988 totaled \$1,325 million, with \$180 million coming from the USSR, \$210 million coming from the U.S., \$525 million coming from France, \$110 million from the U.K., \$150 million from the FRG, and \$150 million from other states.¹⁴² Kuwait imported a total of \$1,345 million worth of arms during 1985-1989, worth \$180 million from the Soviet Union, \$150 million from the U.S., \$450 million from France, \$110 million from the UK, \$5 million from other Warsaw Pact countries, \$20 million from other European countries, and \$430 million from other Middle Eastern countries.¹⁴³

Kuwait's Military Forces Before the Gulf War

At the time Iraq invaded, Kuwait's military forces had a paper strength of around 20,000 men. These included large numbers of what were little more than Bedouin mercenaries, and Kuwait was heavily dependent on foreign personnel for its technical support, service and logistic support, maintenance, and training. These included British, Jordanian, Pakistani, Egyptian, and French personnel and were often of mediocre quality. when they were competent, they were generally ignored whenever their advice required any change in Kuwaiti bureaucratic procedures.

There were U.S., British, and French military and contractor support missions for virtually all of Kuwait's more advanced and Western-supplied military equipment. It did,

¹⁴⁰ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II.

¹⁴¹ Arms Control and Disarmament Agency, World Military Expenditures, 1986, Washington, GPO, 1987.

¹⁴² Arms Control and Disarmament Agency, World Military Expenditures, 1989, Washington, GPO, 1990, p. 117.

¹⁴³ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

however, have some well trained officers, some of which attended Sandhurst. Other Officers, and some NCOs and technicians, had trained in the U.S., Pakistan, and Jordan. The officer corps and NCOs were relatively loyal and were recruited from the ruling family and loyal tribes. Unfortunately, recruitment and promotion were dominated by favoritism, rather than performance.

Kuwait also was unable to recruit its other ranks from its own citizens. Its population before the Iraqi invasion was only about 2.2 million, and less than 30% of this was native Kuwaiti. Other Arabs, including Palestinians, totaled 39%. The rest included 9% South Asians, 4% Iranian, and 20.1% other. Only about 19,500 males reached military age in 1990, and the total male work force from ages 15 to 49 -- including expatriates -- totaled only about 442,000.¹⁴⁴

While Kuwait did try to get its citizens to join the armed forces, and offered good pay and privileges, few volunteered in a country that offered so many more rewarding alternatives. A draft was little more successful. In theory, Kuwait has a draft requiring two years of service, except for university students -- who only had to serve one year. There were so many exemptions, however, that the draft existed largely on paper. As a result, most of the "Kuwaitis" in the military forces in 1990 were from tribal groups that were not really citizens. These Bedouin were raised as tribal levies, had no reason to be loyal to the Kuwaiti government, were poorly treated and paid, and often deserted.

Kuwait's total army manpower was only about 16,000 men when the Gulf War began in the middle of 1990. While Kuwait's order of battle had two armored brigades, one mechanized brigade, and an artillery brigade with a self-propelled artillery regiment and one surface-to surface-missile battalion, this order of battle was little more than a hollow shell. Its total army manpower was equivalent to only two Western brigade slices, and all of its forces were seriously undermanned.

Kuwait had very limited ability to effectively employ its strength of 275 main battle tanks (of which 165 were first-line Chieftains, 70 were low quality Vickers Mark 1s, and 40 were obsolete Centurions), in anything other than a set piece defense. Even its Chieftain tanks were underpowered and experienced continuing overheating and maintenance problems.¹⁴⁵ Kuwait had order the Yugoslav M-84, an inferior and poorly assembled version of the early Soviet T-72, as a replacement tank, but these were not in service. Kuwait's reasons for purchasing this system are unclear.

¹⁴⁴ CIA, World Factbook, 1991, pp. 173-174.

¹⁴⁵ Kuwait is considering up-engining the tanks with new British or German engines. Jane's Defense Weekly, February 28, 1987, p. 323.

Kuwait had more capability to use its lighter armor, but only in set piece defensive maneuvers. This armor included 50 BMP-2 and 100 AT-105 Saxon and Saladin armored fighting vehicles, 100 Saracen and 200 M-113 APCs, and 90 Ferret armored cars. It had British Scorpions and roughly Soviet BMP-2 armored fighting vehicles on order.¹⁴⁶

Kuwait had bought a wide range of anti-tank weapons, including the AT-4, BGM-71A Improved TOW, HOT, M-47 Dragon, and Vigilant, and it has 56 M-901 ITV armored TOW carriers. It has 4,000 Improved TOW missiles on order. This was a good mix of anti-tank weapons, but had an uncertain training and support effort.

The artillery strength of the Kuwait Army included 36 M-109A2 self-propelled and 40 AMX Mark F-3 towed 155 mm howitzers, and approximately 16 old M-101 towed 105mm howitzers, but it had no combat training in using such artillery beyond set piece and firing range exercises. Kuwait's surface-to-surface missile battalion had 12 FROG-7 launchers, but these had little more than symbolic importance.

Kuwait was gradually developing improved army land-based air defenses, although it had too many diverse types and poor training in operating them. Kuwait had Soviet supplied SA-7s, SA-6s, and ZSU 23-4s, and two batteries of SA-8s. The U.S. had refused to sell it the Stinger, but Kuwait had more SA-7s, Egyptian Sakr Eyes, and gun-missile defense systems on order. There were reports of additional orders for SA-6s and SA-8s, and that Kuwait had ordered Crotale or Sea Wolf light surface-to-air missile systems, although Britain was then reluctant to sell Kuwait a key system in service in the British navy because of the fear of loss of the details of the technology to the USSR.¹⁴⁷

In terms of basing, the Kuwaiti army had a massive \$100 million military complex about twenty miles from Kuwait City. These facilities, however, owed more to political convenience, and an effort to maintain high living standards than to military effectiveness. They were vulnerable to air attack, and over-centralized both the deployment of Kuwait's forces and their support functions in fixed locations.

Kuwait's army had poor overall training, little coordination or effective command above the brigade level, and a maintenance and logistic system that was a bureaucratic nightmare in which paper work had complete priority over military effectiveness. Further, Kuwait lacked the ability to deploy sustain its forces in the field without foreign civilian support. Kuwait had concluded an agreement with Turkey to provide for more advanced training, but this came too late to affect its military proficiency.¹⁴⁸

¹⁴⁶ Washington Times, July 14, 1988, p. 2.

¹⁴⁷ Jane's Defense Weekly, January 30, 1987, p. 151

¹⁴⁸ Jane's Defense Weekly, February 28, 1987, p. 314 and March 7, 1987, p. 359.

Kuwait was just beginning to create a real navy when Iraq invaded. It had created an 2,100 man naval force to replace its coast guard, but this force was completely dependent on foreign contractors for training, maintenance, logistics, and often actual operations.. It was based at Ras al-Qulayah and Shuwaikh, and had recently acquired \$29 million worth of new naval facilities. There were and major civil ship repair facilities at Kuwait City's Shuwaikh harbor, including a 190 meter floating dock with a 35,000 DWT repair capability.¹⁴⁹

The core of the Kuwait navy consisted of eight Lurssen guided missile patrol boats. Two of these boats were FPB-57s, and six were TNC-45s. They had 76 mm OTO Melara guns, twin 40 mm guns, and four Exocet MM-40 missile launchers each. It should be noted that these patrol boats had some important limitations common to virtually all GCC naval vessels. They lacked air defense capability, and while their voice communications were good, they could not be integrated into a data link exchange network. Crewing them also required nearly 60% of Kuwait's native naval manning.¹⁵⁰

Kuwait received five 55-meter South Korean missile patrol boats beginning in August, 1987, and these were based in Kuwait's offshore islands. They had anti-ship missiles, helicopter pads, a Hovercraft docking facility. The ships were not fully combat ready, but they did increase Kuwait's shallow water defense capability. Kuwait also had 47 eleven to twenty four meter patrol craft, 4 modern British Cheverton LCTs, 3 LCUs, 3 LSUs, 4 tugs, 6 launches and some light coastal vessels and support craft. The Kuwaiti air force provided additional support in the form of Super Puma helicopters equipped with Exocet.

Finally, Kuwait had six SRN-6 Hovercraft, Exocet-capable SA 365N Dauphin II helicopters, 20 Magnum Sedan patrol boats, two Italian 18.4 meter patrol boats, two 20-meter Italian patrol boats, and more South Korean patrol boats on order. It was negotiating with the Netherlands to buy two Alkmaar-class mine hunters, and Dutch Parliament had approved the loan of two such vessels until new production is available.

While this naval strength was reasonable for a small navy, it also required a manpower based of 5,000-8,000 men in uniform, or 3 to 4 times the manpower Kuwait actually possessed. Kuwait got around some of there requirements by being heavily dependent on foreign technicians, but overall readiness was poor.

¹⁴⁹ I am indebted to Lt. Commander Jerry Ferguson, one of my students at Georgetown University, for much of the research, and many of the insights, on Gulf naval and air forces presented in this chapter.

¹⁵⁰ The 76 mm and 40 mm guns can provide some air defense, but with little lethality. The TNC-45s have very complicated electronics, virtually all of which are maintained by foreign technicians. The voice network system used by the TNC-45 is so slow that it is virtually hopeless for air defense operations and generally creates confusion and increases delay and vulnerability if any attempt is made to use it.

Kuwait's 2,200 man air force was slowly improving in effectiveness, and it had roughly 70 combat aircraft and 18 armed helicopters. It had good basing facilities at Kuwait International Airport, Ahmed Al Jaber Air Base, and Ali Al Salem Air Base. Housing and other facilities were good.

Its combat strength included 30 A-4KU/TA-4KU attack fighters, some of which were being placed into storage to await the delivery of new F-18 multi-role fighters which Kuwait had ordered from the U.S.¹⁵¹ The A-4s were adequate attack aircraft, but had not air combat radars. They could only be used in dogfights where ground based radars or Kuwait's Mirage F-1s guided them to a target. This made them hopelessly inferior to Iraq's modern fighters in air-to-air combat capability.

The air force had an active operational strength of 24 new Mirage F-1BK/CK fighters and 12 Mark 64 Hawk COIN/trainer aircraft. Kuwait's air weapons inventory included AIM-9 Sidewinders, Matra Super R-530, and R-550 Magique air-to-air missiles -- with AS-11 and AS-12 air-to-surface missiles, and 12 AM-39 air-to-ship missiles on order. Kuwait had also ordered the French SA-365N maritime attack system.

The Mirage F-1 aircraft had proved hard to maintain, however, and Kuwait had lost several of the aircraft to accidents. The radars of the Mirage F-1s was unreliable and its 55 kilometer air intercept range proved too short to meet Kuwait's operational needs, and it was forced to use its A-4 attack aircraft in the combat air patrol role when it needs to create an air defense screen. Further, Kuwait was so short of air force personnel that it contracted for Pakistani service and support crews.¹⁵²

Kuwaiti training was adequate for interdiction and close air support missions against targets that lacked good ground based air defenses, but was not suited for attacks on Iraqi forces. Kuwait pilots also had relative limited air-to-air combat training, and were severely hampered by an inadequate air command and control system, and air warning and surveillance coverage. Little effort was made to develop a force that could maintain a high alert status or work with the army in effective combined operations. The Mirage F-1s did, however, maintain a limited alert status during the Iran-Iraq War.

Kuwait had ordered 40 U.S. F/A-18 fighters in July, 1985, at a cost of \$1.9 billion. This sale also included 120 AIM-9 Sidewinder air-to-air missiles, 200 AIM-4 Sparrows, 40 AGM-84 Harpoon anti-ship missiles, and 300 Maverick AGM-65G anti-ship/anti-hard point missiles. Its U.S. approval, however, only came after a bitter fight between the

¹⁵¹ Aircraft actually in storage included 12 Lightnings, 4 Hunters, and 9 BAC-167 Strikemasters.

¹⁵² The A-4s lack an air intercept radar, and can only engage in visual combat using guns or Sidewinder missiles. There are 12 Lightnings and 9 Hunters in storage.

Reagan Administration and Congress. The sale came so close to collapse for the USSR to offer Kuwait the MIG-29, and in order for the Administration to win approval of the sale, Kuwait had to give up its effort to order 200 IR Maverick AGM-65D anti-tank missiles. Kuwait also had to agree to base the F/A-18s only in Kuwait, to not acquire a refueling capability, and to exchange one A-4KU for every F/A-18 delivered to Kuwait.

This left Kuwait with very limited - if not token - levels of munitions stocks for its new aircraft, and without an advanced anti-tank weapon for the F/A-18. Further, the F/A-18s were not to begin delivery until January, 1992, and Kuwait would not receive its active strength of 28 fighters and eight fighter trainers until June, 1993. Its remaining four attrition aircraft would only be delivered after 1994. Had this schedule been followed, it would have meant major turbulence and transition problems for at least half a decade. Its chief virtue was that it promised to give Kuwait an advanced air defense/air attack fighter, and advanced munitions and support facilities which was standardized with those used by the U.S. Navy and U.S. Marines and could significantly improve U.S. over-the-horizon reinforcement capability.¹⁵³

The Kuwait air force had nine transport aircraft, including one B-707-200, six C-130-30s, and two DC-9s.¹⁵⁴ The Air Force operated 46 helicopters. These included 23-30 SA-342K Gazelle attack helicopters, and 23 of these are equipped with HOT. They also included 5-6 AS-332 Super Pumas equipped with Exocet, and 10-12 SA-330 Pumas. It had 6 AS-332F Super Pumas on order. The helicopter crews had moderate training and good foreign maintenance support.

Kuwait had a French designed semi-automated air defense, control, and warning system, but it had only limited radar coverage of Iraq, Iran and the Gulf. It also had limited readiness, and operational reliability, and Kuwait does not seem to have been able to take advantage of many of the computerized features of the system because of software and training problems. The Kuwaiti Air Force did benefit from data exchanges with the E-3As flying in Saudi Arabia, but the quality of the data links was uncertain. This system did not allow either Kuwaitis fighters or its surface-to-air missiles to react quickly and effectively enough to deal with Iranian or Iraqi intruders into Kuwait's air space.

In August, 1990, Kuwait's Air Force had five batteries of Improved Hawk surface-to-air missiles with 24 twin launcher fire units, 12 SA-8 surface to air missile launcher units, and an unknown number of SA-7 and SA-14 man portable surface-to-air missiles. It also

¹⁵³ Defense News, August 8, 1988, p. 7; Jane's Defense Weekly, August 13, 1988, p. 246; Washington Times, July 25, 1988, p. 1; Newsweek, August 25, 1988, p. 47.

¹⁵⁴ Sources differ. The JCSS is shown. The IISS says 2 DC-9, 4 L-100-30.

had 20mm and 35mm anti-aircraft guns, and may have had two Shahine batteries on order. Kuwait had serious problems in absorbing its more sophisticated surface-to-air missiles. This became clear in 1987, when efforts were made to re-site the missiles to defend against attacks by Iran's Silkworm missiles. It is unclear how many IHawk units were really combat ready when Iraq invaded. The U.S. refusal to sell Kuwait Stinger missiles in June, 1984, had led Kuwait to delay the purchase of Hawk systems and to respond by buying some \$327 million worth of light Soviet arms for its Army -- none of which could be netted into an effective air defense system.

Finally, Kuwait had separate National Guards, Palace Guards, and Border Guards, which equipped with a total of 20 V-150 and 62 V-300 Commando armored personnel carriers. The National Guards were intended for civil control and had little military capability. The Ministry of the Interior ran special political and anti-terrorist police forces, and was responsible for internal intelligence and security. These security and intelligence forces had a poor reputation before Iraq's invasion, and their actions after Kuwait's liberation indicate that this reputation was justified.

Kuwait's Military Forces During the Gulf War

The main factors that led to Iraq's invasion have already been described. It is important to note, however, that Iraq's hostility went beyond Kuwait. In April, 1990, Saddam Hussein claimed a new regional role in leading the area, and demanded that the U.S. withdraw from the Gulf. On July 1, 1990, he announced that Iraq had binary weapons -- "a deterrent sufficient to confront the Israeli nuclear weapon" -- and he began a series of speeches threatening all of the southern Gulf states for failing to recognize Iraq as the only nation that had defended them against the Persian threat. On July 17, he accused both Kuwait and the UAE of working with the U.S. to cheat on oil production quotas.

Egypt, Jordan, Saudi Arabia, and the Arab League all made negotiating efforts, but the Iraqi representative walked out of a final meeting in Jiddah, Saudi Arabia on August 1, 1990, in spite substantial concessions by Kuwait. He claimed that Kuwait had refused to negotiate over Iraqi claims to Waribah and Bubiyan, was stealing oil from Iraq's Rumalia oil field, and had refused to negotiate over forgiveness of Iraq's debt to Kuwait. In retrospect, Iraq never seems to have negotiated seriously.

Republican Guard divisions moved south from positions around Baghdad shortly before Saddam Hussein's speech on July 17. A Republican Guards armored division had moved into the Kuwaiti border area by July 21, and some 3,000 military vehicles were on the roads south from Baghdad to the Kuwaiti border. By August 1, there were eight

Republican Guard divisions (two armored, one mechanized, one special forces, and four infantry) between Al Basra and the Kuwaiti border. Some units had moved as far as 700 kilometers from their normal peacetime locations. There was a total strike force of 140,000 troops and more than 1,500 tanks and armored combat vehicles, plus artillery, support, and logistics.¹⁵⁵

Iraq invaded Kuwait at 0100 Kuwaiti time on August 2, 1990. Three Republican Guards divisions attacked across the Kuwaiti frontier. A mechanized infantry and an armored division led the main attack along an axis from Safwan to Abdally., driving south towards the Al Jahra pass. Another armored division main a supported attack further to the West. At 0130, an Iraqi special forces task group attacked Kuwait City in a heliborne assault against key government facilities. Other Iraqi special forces units made an amphibious assault on the Emir's palace and other key facilities. The Emir escaped to Saudi Arabia, but his brother was killed when Iraqi forces attacked the Dasman Palace.

The three attacking armored and mechanized divisions, supported by Iraqi fighters, quickly linked up at Al Jahra. The two divisions supporting the main attack continued east to Kuwait City, where they joined up with the heliborne and amphibious special forces units at 0530 -- a little more than four hours after the invasion began. They had secured the city by 1900 that evening. The remaining Iraqi armored division moved south from Al Jahra to blocking positions along the main routes into Kuwait from Saudi Arabia. By late on the evening of August 2, Iraqi tanks were moving into Kuwait's ports.

Kuwait's forces never really given a test. Kuwait's government mobilized after Saddam Hussein's threats on July 17, but reduced the alert levels to 25% a week later, and did not bring its forces to combat readiness, because of its conviction that its confrontation with Iraq could be solved through peaceful means and fear of provoking Iraq. The key ministers in charge of Kuwait's defense and internal security did nothing to prepare Kuwait's forces for war, or to lead them once the war had begun. A number of senior commanders fled south, rather than tried to rally their troops.¹⁵⁶

As a result, the most the Air Force could do was fly a few sorties and flee to Saudi Arabia. The Kuwaiti forces, however, lacked leadership and not courage. Scattered elements of the Palace Guards and army defended some key buildings for a few hours and tried to recapture the palace. Elements of the Kuwaiti 35th Armored Brigade engaged the advancing Republican Guard forces, and some minor elements of the land forces attempted

¹⁵⁵ The history of Iraq's invasion is adapted from Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress, Washington, Department of Defense, April, 1992, pp. 2-10.

¹⁵⁶ New York Times, January 14, 1992, p. 4.

to defend the southern part of the country. Much of the army, navy, and air defense forces had no choice other than the surrender, however, and much of their equipment was captured intact. Iraqi forces were able to secure the country down to the Kuwaiti-Saudi border by the end of August 3.

On August 4, Iraq began a full scale movement of its forces to establish defensive positions. Additional Republican Guard infantry divisions that had deployed to the border in late July moved into Kuwait, occupied Kuwait City, and secured the routes of communication to Iraq. Other divisions moved south towards Saudi Arabia. By August 6, there were 11 Iraqi divisions in Kuwait, and Saddam Hussein announced that Kuwait was the "19th province -- an eternal part of Iraq" on August 8.

Iraq's subsequent brutality and looting of the country created a major resistance element in Kuwait, led largely by Kuwaiti citizens, but also involving many Palestinians and non-Kuwaiti Bedouins. Kuwait also created new volunteer liberation forces in Saudi Arabia. On paper, these forces built up to a strength of 11,000-14,000 men by the time of Kuwait's liberation in late February, 1991. In practice, these forces had only limited combat training and could do little more during the battle to liberate Kuwait than perform defensive and internal security roles. Their main contribution to the Arab part of the UN Coalition was symbolism -- demonstrating that Kuwait was playing a role in its own liberation. In many ways, the various freedom fighters that stayed behind in Kuwait, and organized themselves, played a far more serious role in tying down Iraqi forces and helping to liberate the country.

When the liberation finally came, Iraq set 732 of Kuwait's 858 operating oil wells on fire.¹⁵⁷ Kuwait's economy had ceased to exist, it had no utilities and urban services, and most of its infrastructure needed repair. In spite of the fact that many of these problems had developed months before the war, Kuwait's government was unprepared to deal with many aspects of the problems it faced. It took nearly six months to organize itself in Kuwait, largely ignored the freedom fighters that had helped liberate the country, and allowed massive purges of Palestinians and anyone else suspected of aiding Iraq. The results were deeply decisive and did nothing to unite the country around the search for effective defense.

Kuwait's Defense Debates Following the Gulf War

¹⁵⁷Kuwait has a total of about 1,386 wells, including shut ins. [Chicago Tribune](#), November 3, 1991, p. I-14; Joseph P. Rive, "Kuwaiti Oil Well Fires Updated," Congressional Research Service, 91-313, June 26, 1991.

Since its liberation, Kuwait has had to drastically rethink virtually every aspect of its defense plans and force structure. On the one hand, it is brutally clear that Kuwait cannot rely on a combination of diplomatic maneuvering, "aid" to potential threats, and a limited deterrent force for its security. On the other hand, it is equally clear that Kuwait faces the following major strategic problems:

- o Its goal of creating a roughly 30,000 man force will not allow it to defend against an Iraqi or Iranian attack, but is still too high to be practical. Further, its refusal to offer full citizenship to the children of immigrants, or Bidoon, regardless of background and loyalty, deprives it of a critical source of manpower.
- o It is acting on the conviction that its military forces must be purged of any elements that are not fully loyal to Kuwait. This had led Kuwait, rightly or wrongly, to reject about half of its pre-invasion manpower.
- o The geographic fact that it has not strategic depth and will remain highly vulnerable to Iraq and Iran as long as these nations have major military forces.
- o Saudi Arabia and the other GCC states cannot provide the mix of land and air strength necessary to halt an Iraqi attack before it seizes Kuwait, or provide the kind of air and missile defense screen necessary to defend Kuwait against Iran.
- o Egypt and Syria are unlikely to provide an adequate Arab military force under financial and political conditions that Kuwait finds acceptable, and may be unable to project effective military power this far from their home bases.
- o The U.S. cannot project land power rapidly enough to move armored and mechanized forces large enough to defeat an Iraqi attack without either a month of strategic warning, or a combination of prepositioned equipment, forward deployment force elements, and constant training. At the same time, the effective use of U.S. air power requires access to both Saudi and Kuwaiti bases, prepositioned munitions, and a fully modern and interoperable combination of sheltered air bases, surface-to-air defenses, and C³I systems.

The full nature of Kuwait's solution to those problems is unclear at this time. It is awaiting the completion of U.S., British, and Kuwaiti studies of its future force requirements. At the same time, it is trying to pursue a combination of restructuring Kuwait forces, encouraging U.S. prepositioning, seeking to strengthen its military ties to Saudi Arabia, and discussions with Egypt. The success of these efforts is as unpredictable as the rate at which Iran and Iraq will rearm. Kuwait has, however, begun to actively rebuild its forces.

While it is impossible to clearly distinguish Kuwait's defense spending from its aid to the nations in the UN coalition that liberated it, it spent at least \$1.5 billion in rebuilding its forces in Saudi Arabia after its territory was occupied by Iraq, and some \$5 billion in 1991. Some reports talk about future spending levels as high as \$9 billion a year, but this raises serious questions about financing. As has been touched upon earlier, Kuwait spent more than \$10 billion on war-related expenses. While its assets ranged from \$80 to \$100 billion before the war, some estimates put its assets at around \$30-\$50 billion after the conflict and Kuwait obligations to pay for oil field repairs and modernization and pay off bad debts from its stock market scandal of several years earlier. The Emirate incurred a massive budget deficit in 1991 and 1992, and borrowed \$5.5 billion in a syndicated loan from commercial banks.¹⁵⁸

Kuwait has experienced major problems with manpower. It has driven out some 300,000 Palestinians, and while they never played a direct role in Kuwait's military forces, they did staff some of the Ministry of Defense's technical and support function, including some aspects of contracting and procurement. Kuwait has also purged its army of some 10,000 Bedouin who were not Kuwait citizens, but who generally fought well against the Iraqis or in the resistance. Its remaining eligible male population is only about 160,000, and it recruited only 1,000 citizens into the armed forces in 1991 -- partly because of its failure to integrate the resistance into the armed forces and the Royal family's failure to provide convincing new leadership for the armed forces.¹⁵⁹

This has given Kuwait new forces of between 8,200 and 9,200 men, or about half the manpower it had before the Iraqi invasion. This manpower seems to be largely Kuwaiti and to include large numbers of personnel recruited for the liberation of Kuwait after August, 1990. Most of this manpower seems to be composed of actual citizens, although Kuwait has had to bring back some of the Bedouin it fired from the armed forces, and there is no sign of a draft. Kuwait is heavily dependent on foreign personnel for its technical support, service and logistic support, maintenance, and training. U.S., British, and French military and contractor support missions have returned to Kuwait.¹⁶⁰

There are serious morale and leadership problems among Kuwait's officers and enlisted men. Rightly or wrongly, many feel that their senior commanders were often promoted

¹⁵⁸ London Financial Times, January 7, 1992, p. 4; New York Times, May 4, 1992, p. A-1; Christian Science Monitor, May 29, 1992, p. 8.

¹⁵⁹ Jane's Defense Weekly, March 28, 1992, p. 531.

¹⁶⁰ Estimates of Kuwait's restructured forces are based on material provided by the Kuwaiti Embassy, the Jaffee Center, the Congressional Research Service, and the IISS, Military Balance, 1991-1992, pp. 110-111; New York Times, January 14, 1992, p. 4; London Financial Times, February 26, 1992, p. III-1.

purely for family and political reasons and deserted in the face of the enemy when Iraq attacked. Many feel the royal family deliberately ignored those who fought in the resistance, and allow post war contracts to be awarded out of favoritism and corruption. They also question the government's efforts to study what went wrong and learn from the lessons of the war.

These feelings have gone beyond silent resentment. In April, 1991, a group of senior officers sent the Emir a letter calling for the investigation and dismissal of Defense Minister Sheik Nawaf al-Ahmad al Sabah for failing to mobilize, for pulling forces back from the border shortly before the invasion, for ordering the Kuwaiti tanks in the border area not to fire on the advancing Iraqi troops, and for fleeing the country without giving orders to Kuwait's forces once the war had begun. They also called for the investigation of Interior Minister Sheik Salem Sabah al-Salem for taking no action to provide suitable warning and internal security measures. The Emir dealt with this situation by making Nawaf Minister of Social Affairs and Labor, but he also made al-Salem the new Minister of Defense.¹⁶¹

In January, 1992, the government faced a revolt by junior and mid-grade officers. They demanded the resignation of up to 100 military officers and defense personnel, including 20 generals and a number of members of the royal family. Some 14 officers were retired, but this did not satisfy military or public opinion. While the new Minister of Defense, Sheik Ali Salem Sabah al-Salem has gradually improved relations with some of the military, the royal family will have to do much to rebuild the respect and loyalty of the armed forces.¹⁶²

Kuwait also faces major uncertainties as to whether it will ever get back the equipment that Iraq seized and took back to Iraq. The Kuwaiti Minister of Defense, Sheik Ali Sabah Al Sabah stated in early 1992 that Iraq would not give back the equipment, and that Kuwait would not take back equipment in the condition that it would be in after Iraqi use. He accused Jordan of working with Iraq to ensure that Iraq can use the IHawks it took from Kuwait, and indicated that Kuwait would reequip Kuwait's forces on the basis of British, Kuwaiti, and U.S. studies of Kuwaiti security needs.¹⁶³

At virtually the same time, however, the Kuwaiti Deputy Chief of Staff, Brigadier General Jaber Al Sabah stated that Iraq had agreed to return all captured equipment by the summer of 1992, and that this include 200 Chieftain tanks, many Soviet BMP-2 armored

¹⁶¹ New York Times, May 24, 1991, p. 8; London Financial Times, June 21, 1992, p. 18.

¹⁶² New York Times, January 14, 1992, p. 4; London Financial Times, July 8, 1991, p. 3, February 26, 1992, p. III-1; Jane's Defense Weekly, December 14, 1991, p. 1174.

¹⁶³ Defense News, February 10, 1992, p. 38.

fighting vehicles, and hundreds of trucks. At the same time, however, he indicated that Iraq was actively testing its captured IHawks, that some of the A-4s Iraq had captured had been so damaged that they had to be flown back to Kuwait in slings, that six Mirage F-1s had been declared missing or destroyed, that four Hawk trainers were returned in bad condition, that a returned C-130 had been seriously damaged, and that the patrol boats Iraq returned to Kuwait had been damaged so severely that they had to be returned by land.¹⁶⁴

Kuwait's Military Forces After the Gulf War

Kuwait's army manpower totaled about 8,500 regulars in mid-1992. It was loosely organized into two mechanized-armored brigades and a special forces battalion, with three infantry brigades forming, although the best brigade had only 1,000-1,500 men and its actual manpower was equivalent to less than one Western brigade slice. Most of Kuwait's units have only one-fourth their pre-war strength.¹⁶⁵

Its armor consisted of about 18 surviving Chieftains, and roughly 90 Yugoslav M-84 equivalents of the T-72, out of some 110 on order. The M-84s tanks were not fully equivalent to the T-72 and had mediocre armor and relatively unsophisticated fire control and sighting systems.

Kuwait is discussing the purchase of U.S. M-1A2 or British Challenger 2 main battle tanks as a substitute, and matching U.S. M-2 or British Warrior armored fighting vehicles to modernize its forces. It needs at least 200 new tanks and AFVs, and may buy more as a form of prepositioning for British or U.S. reinforcements. There were reports in late September, 1992, that Kuwait might buy as many as 760 tanks and 644 armored infantry carrying vehicles.

Kuwait held trials to choose these new tanks in August and September of 1992. The U.S. M-1A2 seemed to have the advantage, with a top speed of 65 km/h versus 50 for the Challenger 2, superior braking, three hits out three at 2,000 meters versus one out of three, 10 hits versus eight at 4,000 meters, six hits firing on a slope versus two, and four hunter killer hits in 32 seconds out of four fired versus three hits out of four in 66 seconds. Similarly, the M-2 Bradley out-scored the Warrior with a 90% hit on the move score versus 16% for the Warrior, and three TOW hits out of three firings versus one for the Warrior. Some reports indicated, however, that Kuwait might make a political decision to

¹⁶⁴ Defense News, February 24, 1992, p. 1 & 82.

¹⁶⁵ Jane's Defense Weekly, December 14, 1991, p. 1174; London Financial Times, November 18, 1991, p. 4.

land equipment from the U.K., naval equipment from France, and air equipment from the U.S. in an effort to ensure multiple sources of reinforcements.¹⁶⁶

Other armor included 40-50 BMP-2s, 10-15 BDRMs, some Ferret and Saladin armored fighting vehicles, about 45-50 M-113s, 35-45 Fahd APCs, some armored mortar carriers, and roughly 20 special purpose and armored engineering vehicles. It was discussing orders of British GKN warriors and other armored vehicles, and had ordered up to 700 unarmored Humvee troop carriers and support vehicles. Kuwait's surviving anti-tank weapons and new orders included TOW and HOT anti-tank guided weapons, and at least 200 Carl Gustav 84mm rocket launchers.¹⁶⁷

The artillery strength of the Kuwait Army included several M-109A2 self-propelled 155 mm howitzers, M-56 and M-101 towed 105mm howitzers, some 122mm, 130mm, and 152mm weapons that seem to have been captured from Iraq, and a few multiple rocket launchers. It was discussing an order of 18 GIAT 155mm artillery weapons from France and 78 155mm artillery weapons from ARMSCOR in South Africa.¹⁶⁸ Surviving army land-based air defenses included SA-7s, SA-14s, ZSU-23-4s and some 14.5mm and 20mm light anti-aircraft guns.

In spite of U.S. and Saudi training during the war with Iraq, Kuwait's restructured land forces have substantially less military capability than before the war, particularly in any form of maneuver, independent artillery action, or use of armor. The Army still lacks the ability to deploy sustain its forces in the field without foreign civilian support.

Kuwait faces equal problems in restructuring its navy and air force. In terms of basing, Kuwaiti army must rebuild its military complexes at virtually every level, although many buildings were intact. This involves at least \$275 million in damage for all 11 of Kuwait's military bases.¹⁶⁹

The Kuwait Navy only had about 300 men in its naval forces in mid-1992 -- based at El Adami and Shuwaikh. It was not able to use most of its base at Qalayah near Mina Sud, although some reconstruction was underway. It lost most of its 23 ships, and main force of eight missile patrol boats, and its only major surviving naval craft consist of one FPB-57

¹⁶⁶ Jane's Defense Weekly, March 28, 1992, p. 531, May 23, 1992, p. 878, May 30, 1992, p. 911, August 15, 1992, p. 5, September 5, 1992, p. 5; London Financial Times, July 8, 1991, p. 3; Defense Week, August 24, 1992, p. 1; Defense News, September 28, 1992, p. 18.

¹⁶⁷ Jane's Defense Weekly, February 8, 1992, p. 187, February 22, 1992, p. 274; Defense News, November 18, 1991, p. 37; London Financial Times, February 16, 1992, p. 4.

¹⁶⁸ Jane's Defense Weekly, March 28, 1992, pp. 530-531.

¹⁶⁹ Defense News, November 18, 1991, p. 37, November 25, 1991, p. 22.

and one TNC-45 missile patrol boat. These each have one 76 mm OTO Melara gun, twin 40 mm guns, and four Exocet MM-40 missile launchers (2 twin launchers).¹⁷⁰

Kuwait will have to completely rebuild its naval base, 100 kilometers south of Kuwait City. The Kuwaiti Navy has, however, been reequipped with 17 small patrol boats from Britain's Cougar Marine. These boats replace those destroyed during the war, and some of the boats were used by Kuwait's forces during the liberation of Kuwait. The 17 boats include three catamarans, three 33' ultra-fast patrol boats, three 35' ultra-fast patrol boat, four 38' ultra-fast patrol boats, and four ultra-fast patrol boats. The five South Korean Seagull class patrol boats Kuwait had ordered in 1986 were seized by Iraq and were destroyed during the war, but Kuwait still has to take delivery on five more ordered in 1988. The coast guard also has two 30 meter Australian 30 meter patrol boats on order.¹⁷¹

Kuwait's air force consisted of about 200 regulars and 800 support personnel, or half its per-war strength. Its two main bases at Ali al-Salem (al-Jahrah) north of Kuwait City, and Ahmed al Jaber (al-Ahmadi) south of Kuwait City, suffered serious damage. Its forces were operating out of Kuwait City airport, although the U.S. Corps of Engineers was rushing repairs on both bases and hoped to have the base at Ali al-Salem completed in time to base Kuwait's new F/A-18s by late 1992.¹⁷²

It had roughly 20 A-4KU/TA-4KU attack fighters out of a pre-war total of 30, 15 Mirage F-1BK/CK fighters out of a pre-war total of 23, and 6 surviving armed Hawk trainers. Many of these surviving aircraft had only limited operational capability, although Kuwait retained a stock of Matra 530 and 550 missiles.¹⁷³

Kuwait was, however, taking delivery of its first F/A-18C/Ds. Its order of 32 U.S. F/A-18C and 8 F/A-18D fighters, AIM-9 Sidewinder air-to-air missiles, AIM-4 Sparrows, AGM-84 Harpoon anti-ship missiles, and Maverick AGM-65G anti-ship/anti-hard point missiles has become critical to rebuilding an effective air force. Kuwait had taken delivery of 12 F/A-18C/Ds by June, 1992, and was discussing the order of up to 35 more of these aircraft with the U.S., as well as plans to refurbish 15 of its Mirage F-1s with France. It had also ordered 12 Tucano T Mark 2 trainers, and was considering the purchase of British Hawk trainer-fighters.¹⁷⁴

¹⁷⁰ Jane's Defense Weekly, February 22, 1992, p. 274; Defense News, November 18, 1991, p. 37, November 25, 1991, p. 22.

¹⁷¹ International Defense Review, 10/1991, p. 1152.

¹⁷² Full repairs will not be completed until 1994. Defense News, November 18, 1991, p. 37.

¹⁷³ Jane's Defense Weekly, December 14, 1991, p. 1174; Defense News, November 18, 1991, p. 37.

¹⁷⁴ The F/A-18s are the first delivered with the new F-404-GE-402 17,754 lb. thrust engines. St. Louis-Post Dispatch, October 9, 1991, p. B-1; Aviation Week, February 3, 1992, p. 63; Jane's Defense Weekly,

Many of Kuwait's other aircraft were destroyed or seized during the war. The Air Force did, however, retain 12 SA-342K Gazelle attack helicopters equipped with HOT anti-tank guided missiles, and 5-6 AS-332 Super Pumas and 6 SA-330 Pumas. It also had some C-130 transport aircraft. Kuwait was also planning to expand its attack helicopter force through the purchase of 20 AH-64 Apache attack helicopters. The Apache will present problems because it requires roughly the same training and support effort as a modern fighter aircraft. It does, however, offer a number of unique advantages to a nation like Kuwait. It is a highly lethal day-night all weather tank killer that can quickly reach any position in Kuwait, and which can evade or survive many of the mobile short-range air defenses in Iraqi and Iranian forces. Its Hellfire missiles can be used against landing and small craft as well, and it can perform an armed reconnaissance mission which the Gazelle cannot. In a country as small as Kuwait, it can be based out of major airfields, which reduces the support problem, and Kuwait's purchase of the AH-64 improves its ability to support and interoperate with a key weapon in U.S. power projection forces.¹⁷⁵

Kuwait's land based air defense system was virtually destroyed during the war, along with most of its radars and light air defense batteries. Its four batteries of Improved Hawk surface-to-air missiles were transferred to Iraq, with little immediate prospect of their recovery. As a result, Kuwait was in the process of rebuilding its air defenses from the ground up. It had placed a \$2.5 billion order with the U.S. for six Improved Hawk batteries, six Patriot fire units, and 450 Patriot and 342 IHawk guided missiles. Egypt has also indicated that Kuwait may order two battalions worth of the Amoun defense system. This would include eight modified four round Sparrow surface-to-air missile launchers, Oerlikon-Contraves twin 35mm towed anti-aircraft guns, four modified Skyguard fire control systems, and two longer range radars -- possibly the AN-TPS-63.¹⁷⁶

What is not clear is what degree of integration Kuwait will achieve with Saudi Arabia and Bahrain. This is crucial to both Kuwait's future security and the ability of the West to reinforce Kuwait effectively because Kuwait's small size and air space, common border with Iraq, and proximity to Iran, require a survivable air defense and land and maritime surveillance system. No Kuwaiti-based system can provide such characteristics

October 26, 1991, p. 753, February 22, 1992, p. 274, March 28, 1992, p. 531, May 23, 1992, p. 879.

¹⁷⁵ Jane's Defense Weekly, March 28, 1992, p. 530.

¹⁷⁶ The Amoun is a modification of the Contraves-Raytheon system and has improved missile guidance and tracking, ground clutter rejection, and computer hardware and software. Washington Post, March 12, 1992, p. A-23; Jane's Defense Weekly, December 14, 1991, p. 1174. February 29, 1992, p. 341, March 21, 1992, March 28, 1992, p. 531; Defense News, November 18, 1991, p. 3.

unless it is integrated into a Saudi system, preferably with close links to Bahrain, Qatar, and the UAE.

Kuwait is also considering building a security fence similar to the one under study by Saudi Arabia. This fence would consist of IR sensors, pressure sensors, electrified wires, trenches, barbed wire and electronic sensors. The Ministry of Interior would operate the fence, and it would cover the entire 198 kilometer (124 mile) border with Iraq. Contending companies have proposed different approaches to such a system. Thomson-CSF and Thorn favor infra-red sensors. Racal Comsec and Hughes favor terrestrial sensors, and pressure cable sensors, and some experts favor tethered aerostats carrying radars. Western advisors, however, have cautioned that such a fence could be a waste of money. While the sensors might have some value, the fence would have little barrier value and could be highly manpower intensive.¹⁷⁷

Strategic Interests and Arms Control

There are many reasons to criticize the leadership that the Kuwaiti royal family has shown since the war. While the Kuwaiti government has done many things well, it has wasted money in many areas while failing to spend them in others, and its policy towards its Palestinians and other immigrants has been far more vindictive than sensible. Its citizenship policies seem likely to contribute to further internal security problems and limit its military manpower. Kuwait is also the one southern Gulf country that could easily move toward more democratic reform, and the failure of the royal family to lead reform is also likely to create future internal security problems. It is unfortunate that a nation that has both outstanding younger members of its royal family, and outstanding technocrats, is being led by an older generation of the Al-Sabah family, ministers, and civil service that fall far short of the leadership qualities the nation needs.

Nevertheless, the West has no choice other than to provide Kuwait with arms and support. Kuwait has no foreseeable prospect of being able to defend its own territory. It requires substantial additional arms imports if it is to create a limited regional deterrent or to acquire the levels of munitions, weapons, and military facilities to allow either an Arab or U.S. force to come to its aid. Without access to such arms imports, Kuwait will be hopelessly weak. Further, Kuwait has no foreseeable chance of reducing its dependence on foreign technicians or support during the next decade. It will be unable to use its arms

¹⁷⁷ Defense News, March 2, 1992, p. 1; , July, 1992, p. 29; Armed Forces Journal, July, 1992, p. 29.

against any nation without supplier assistance, although Iran and Iraq could operate many Kuwaiti weapons systems if these were seized in a future invasion.

The Gulf Cooperation Council offers no near or mid-term prospect of offering the kind of reinforcements that could defend Kuwait's northern border. While outside Arab forces could help secure Kuwait, Egypt is the only nation that could provide sustainable and combat effective forces, and it is not structured to provide this kind of power projection force. Even if Kuwait and Egypt reached a political and financial agreement, Egypt lacks anything approaching the high technology power projection capabilities of the United States.

Kuwait has shown that it is willing to make major investments in its own defense. In late August, 1992, Kuwait announced that it would spend a total of 3.5 billion Kuwaiti dinars, or \$12 billion, on modernization efforts and advanced weapons over the next twelve years. The Higher Defense Council was authorized to spend these funds beginning in FY1992/1993. It also indicated that it had spent 6.2 billion Kuwaiti dinars in FY1990/1991, and might spend 4 billion Kuwaiti dinars in FY1991/1992. These sums evidently did not include non-recurrent war costs of 4.5 billion Kuwaiti dinars in FY1991/1992, and 2.1 billion Kuwaiti dinars in FY1992/1993.¹⁷⁸

Kuwait will require the support of U.S. and other Western forces in any serious crisis with Iraq and Iran until well after the year 2000. This explains why Kuwait signed a 10 year joint defense agreement with the U.S. in September, 1991. The agreement allowed the U.S. to preposition stocks and equipment on Kuwaiti soil, and gave the U.S. access to its ports and airfields in an emergency. It called for Kuwait to pay the U.S. \$215 million for prepositioning aid and support, including \$50 million in 1992. Prepositioning was to include the equipment for three armored companies and three mechanized companies, including 58 M-1A2 tanks, M-2s, artillery, and other equipment, plus the construction of some \$125 million in storage and reception facilities.

The agreement also provided for joint training. U.S. and Kuwaiti forces had completed two joint exercises by May, 1992: One involved 2,300 Marines and the other 1,000 special forces. Kuwait reached a similar agreement with Britain in February, 1992, and conducted its first joint exercise with British forces in May. It is likely to sign a similar agreement with France.

The importance of such strategic cooperation became all too clear in August and September of 1992. The confrontation between Iraq and the UN over the elimination of

¹⁷⁸ London Financial Times, August 24, 1992, p. 3.

weapons of mass destruction, and Iraq's treatment of its Shi'ites and Kurds, forced the U.S. to transform U.S. Army, Marine Corps, and Navy exercises into a demonstration that the U.S. could protect Kuwait against any military adventures by Iraq. The U.S. rushed Patriot batteries to both Kuwait and Bahrain, conducted a test pre-positioning exercise called Native Fury 92, and an amphibious reinforcement exercise called Eager Mace 92. It deployed 1,900 Marines and 2,400 soldiers, including two armored and two mechanized companies. ¹⁷⁹

The practical problem with such agreements is that Kuwait has virtually no strategic depth, and Iraq and Iran can threaten access to Kuwait in a crisis. Further, Iraq will soon recover sufficient military capability to overrun Kuwait and equipment prepositioned in Kuwait. Effective security arrangements in the Upper Gulf require similar Western agreements with Saudi Arabia, which has so far refused to sign them.

¹⁷⁹ Jane's Defense Weekly, February 22, 1992, p. 274, March 7, 1992, p. 375, August 1, 1992, p. A-10, August 4, 1992, p. A-14, August 8, 1992, p. 6, August 15, 1992, p. A-15; Defense News, September 9, 1991, p. 1, November 18, 1991, p. 3, February 17, 1992, p. 3, June 15, 1992, p. 26; Stars and Stripes, March 3, 1992, p. 8; London Financial Times, July 8, 1991, p. 3; Washington Post, August 28, 1991, p. A-7, September 6, 1991, p. A-24, August 15, 1992, p. A-15; Washington Times, December 6, 1991, p. A-2, August 5, 1992, p. A-1; Aviation Week, September 9, 1991, p. 21.

Bahrain

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 2 | - | - | - | - | - |
| 1973 | 2 | - | - | 5 | - | - |
| 1982 | 2 | - | - | 281 | 5 | - |
| 1988 | 5 | 54 | 12 | 187 | 30 | - |
| 1991 | 7 | 80 | 24 | 201 | - | - |

Bahrain is one of the smallest countries in the Middle East, with a total land area of 620 square kilometers -- roughly the size of the greater metropolitan area of Washington, D.C. The main island has a coastline of 161 kilometers and is connected by a causeway with Saudi Arabia. It is within a short flying time from Iraq, and is very vulnerable to any naval or air attack from Iran. Bahrain has long disputed the control of islands and reefs between Bahrain and Qatar. There have been several armed incidents when the two countries have deployed troops or contested control of the 16 Hawar Islands and reef or shoal of Fasht-e-Dibal.

Bahrain quietly maintains military forces in the Hawar Islands. The most serious incident between the two countries occurred in 1985-1986, and over the Fasht-e-Dibal. Bahrain built a coast guard station on the Fasht-e-Dibal in 1985, attempting to assert sovereignty over the area. On April 26, 1986, Qatari troops land by helicopter and arrested the Bahraini forces on the shoal. Qatar occupied the site for over a month, until Bahrain agreed to destroy the facilities it had built on the Fasht-e-Dibal.¹⁸⁰

Bahrain's total population is only 537,000, and only a little over 60% of that population is native Bahraini. This mix of size and population does not allow Bahrain to develop significant military forces. However, Bahrain does occupy a strategic position in the south Central Gulf, within easy flying range of both Iraq and Iran.

Bahrain is a monarchy ruled by the al Khalifa family, which has been in power for most of the period since 1783, although the Iranian Safavid dynasty sometimes dominated the country from 1602 to 1782. It became part of the British Trucial States in 1861 -- as part of Britain's effort to secure the approaches to India and as part of its own effort to secure its position against the Ottomans and Iranians. It signed treaties expanding Britain's role in 1880 and 1992. Oil was first discovered in Bahrain in 1932, and this early oil wealth has made it one of the most sophisticated states in the southern Gulf.

¹⁸⁰ Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991, p. 156.

Once Britain decided to leave the Gulf in January, 1968, it joined Bahrain to a federation that included Qatar and the seven sheikdoms that later became the United Arab Emirates (UAE). While this federation was established in July, 1968, both Bahrain and Qatar were then far more developed states than the emirates that became part of the UAE, and had little reasons to stay in a federation that promised to create as many political and economic problems that it would solve. As a result, Bahrain chose full independence in 1971, when Britain left the Gulf.

Ever since, Bahrain has been allied with Saudi Arabia and the United States. The U.S. naval task force in the Gulf has long been headquartered in the Gulf, and has both shielded Bahrain and benefited from the use of Bahrain's port and airfield. Bahrain provided the U.S. with extensive support and naval and air facilities during its intervention in the Gulf in 1987-1988, when the U.S. checked Iranian efforts to interfere with Kuwaiti and Saudi shipping. It provided equally strong support in 1990-1991, during the Gulf War, and signed a formal security agreement with the U.S. in 1991.

Bahrain is deeply divided in ethnic and religious terms. The ruling Khalifa family is Sunni, although 70% of Bahrain's totally Islamic population is Shi'ite. Bahrain is also divided along national and ethnic lines. About 63% is Bahraini, 13% is Asian, 10% is other Arab, 8% is Iranian, and 6% is a mix of other groups.¹⁸¹ The end result is a society where the native Shi'ites rule and prosper through discrimination and subordination of the Shi'ites and non-Arabs.

These divisions have created a number of political and security problems. The large number of Shi'ites and Iranians led the Shah of Iran to make a claim to Bahrain in 1970, although he desisted in this claim after Britain refused to acknowledge it. It also helped lead to the break up of Bahrain's constituent assembly. This assembly was created in 1972, but broke up in 1975 -- in large because of left wing political pressure which was led by Shi'ite politicians. There is considerable evidence that Iran sponsored a coup attempt in Bahrain in 1981, after Khomeini came to power. This coup attempt or uprising was broken up before any fighting began, but has left an increased heritage of friction between the ruling family and many younger Shi'ites.¹⁸²

The al Khalifa regime has made efforts to improve social services, but it still tends to be discriminatory in dealing with the nation's Shi'ite majority and has not extended equal

¹⁸¹ All demographic statistics used for Bahrain and the rest of the GCC states are based on CIA estimates in the relevant country sections of The World Factbook, 1991, Washington, GPO, 1991, p. 23.

¹⁸² The coup involved arms shipped from Iran to Bahrain, the use of the Iranian embassy to support the coup attempt, and the training of Bahraini citizens in Iran. While some expatriate were arrested, the core force in the coup was some 73 Bahraini youths, all Shi'ite.

privileges to its large "foreign" population -- a problem which is of considerable importance in a nation where less than 12% of the population can trace their roots back to families that were living in Bahrain in 1921.¹⁸³

The current ruler, Sheik Isa ibn Salman al Khalifa does hold frequent meetings of his Majlis, and has made some statements that promise additional democracy. Bahrain does, however, have strict censorship and serve limits on the activities of trade unions. Its criminal justice system is administered primarily to ensure internal security, and the government's favoritism and corruption have created growing internal hostility among younger Shi'ites, and this has led to several sabotage attempts.

The royal family is able to move freely with only moderate security measures, but two new arms caches were discovered in 1984, and as many as 30 people may have been arrested. A new and relatively well organized opposition movement called the Islamic Front began to form cells in the Shi'ite villages in 1986, and had organized some cells to conduct guerrilla and sabotage operations in 1987. This led to 60-100 arrests in 1988. While only about 10% of Bahrain's Shi'ites currently seem to actively sympathize with the more open and radical opposition to the Emir, this is at least partly the result of constant efforts by Bahrain's British-led security services, of bribes and cooption of opposition elements, and the surveillance imposed by a large network of informers.

Bahrain is still an oil power, although its reserves are declining and it is now a small one by Gulf standards. As of January 1, 1992, it had estimated proved oil reserves of up to 83,490 million barrels, and gas reserves of 48,000 billion cubic feet. It had far less than 1% of the world's total oil reserves, and only produced at a rate of about 38,000 barrels per day during 1990 and 1991.¹⁸⁴ Even this production was only made possible by a huge workover of its oil field and gas injection, and could only be sustained for a maximum of 30 years. Bahrain is already making full use of its gas reserves, and more than 80% of the oil that flows through its refinery now comes from Saudi Arabia.¹⁸⁵

Bahrain is not a wealthy state by southern Gulf standards. Although 85% of its export receipts, 60% of its government revenues, and 20% of its GDP come from

¹⁸³ This definition residency was the criteria for being able to vote for Bahrain's parliament before it was dissolved in 1976. Only 3% of the male population qualified.

¹⁸⁴ *OJJ Special, Oil and Gas Journal*, December 30, 1991, pp. 43-49; Other estimates indicate 260 billion barrels of proven reserves and 42 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the *Oil and Gas Journal*, September 23, 1991, p. 62. These estimates have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerates its reserves and relative importance.

¹⁸⁵ *Middle East Economic Review*, November 22, 1991, pp. 13-16.

petroleum products and processing, it is heavily dependent on a refinery using Saudi oil and an aluminum smelter built largely with Saudi aid to support much of its economy. It had long had budget deficits which has only been offset by Saudi aid, and has no practical way to expand its aluminum production -- which accounts for another 10% of its GDP. Its GDP is around \$3.5 billion and its per capita income is around \$7,000. Its Sunnis generally have substantially higher incomes than its Shi'ites.¹⁸⁶

Bahrain experienced a sharp contraction of its offshore banking operations as a result of recent wars and the "oil glut" that began in the mid-1980s. This has cut per capita income from \$10,000 in 1985 to around \$6,000 in 1992.¹⁸⁷ It has also created an unusual amount of unemployment among the native labor forces, particularly among the younger Shi'ites. Saudi Arabia does, however, seem likely to continue to subsidize Bahrain's 250,000 BPD BAPCO refinery by providing 70% of its oil. Bahrain has developed a considerable tourist industry because of its liberal social policies, however, and is diversifying into industries using its still extensive stocks of gas feedstock.

Bahrain's Military Manpower, Military Expenditures, and Arms Imports

Bahrain's total male manpower pool is about 188,000, counting the population from 15-49. The CIA estimates that 104,000 males are fit for military service, but this includes a large number of foreigners, and only 42% of the labor force is Bahraini.¹⁸⁸ The IISS estimates that there are 22,100 males between the ages of 13 and 17, 20,400 between the ages of 18 and 22, and 45,800 between the ages of 23 and 32.¹⁸⁹ Military service is not a popular career, and few native Shi'ites are allowed into the armed forces, but at least half of Bahrain's officers, NCOs, and technicians are native. Bahrain is, however, heavily dependent on foreign contract personnel for support.

Bahrain's military expenditures have always been low by Gulf standards.¹⁹⁰ ACDA estimates that Bahrain spent \$108 million on military forces in 1978, \$143 million in 1979, \$157 million in 1980, \$215 million in 1981, \$281 million in 1982, \$166 million in

¹⁸⁶ CIA, World Factbook, 1991 and Middle East Economic Review, November 22, 1991, pp. 13-16.

¹⁸⁷ Defense News, March 16, 1992, p. 16.

¹⁸⁸ CIA, World Factbook, 1991.

¹⁸⁹ IISS, Military Balance, 1991-1992. While Iran occasionally shows women in military roles for propaganda purposes, it does not employ them in any meaningful military roles.

¹⁹⁰ Bahraini defense expenditure was officially set at 50.7 million dinars (\$135 million) in 1986, and 53.9 billion dinars (\$143 million) in 1987, and 62 billion dinars in 1988 (\$165 million). It seems to have risen to an average of around \$200 million annually in 1987 if one includes Saudi aid. Estimate based on Bahraini data and reporting in Jane's Defense Weekly, March 15, 1986, p. 452.

1983, \$148 million in 1984, \$151 million in 1985, \$161 million in 1986, \$160 million in 1987, \$187 million in 1988, and \$196 million in 1989.¹⁹¹ Bahrain spends about four to eight percent of its GDP on defense, and 10 to 20% of its central government expenditures. These expenditures rose by only a limited amount in 1990 and 1991, because there was little Bahrain could do to expand its forces to respond to the Gulf War. The IISS estimates that Bahrain's military expenditures were \$183 million in 1989, \$201.9 million in 1990, and \$193.9 million in 1991. Bahrain did, however, lose nearly \$2 billion because of the collapse of trade and tourism and spent over \$50 million beyond its defense budget to help UN Coalition forces.¹⁹²

Bahrain has also spent comparatively little on arms. ACDA estimates that Bahrain imported \$20 million worth of arms in 1979, \$40 million in 1980, \$40 million in 1981, \$5 million in 1982, \$30 million in 1983, \$40 million in 1984, \$10 million in 1985, \$50 million in 1986, \$370 million in 1987, \$30 million in 1988, and \$50 million in 1989.¹⁹³ It also estimates that Bahrain took delivery on \$120 million worth of arms during 1979-1983. This included \$10 million worth of arms from the U.S., \$40 million from France, \$40 million from West Germany, \$10 million from Italy, and \$20 million from other countries.¹⁹⁴ Bahrain took delivery on \$505 million worth of arms during 1984-1988. This included \$250 million worth of arms from the U.S., \$60 million from France, \$2.5 million from the PRC, \$5 million from the U.K., \$180 million from the FRG, and \$5 million from other countries.¹⁹⁵ ACDA changed its way of reporting arms sales by source in 1992. According to this reporting, Bahrain imported a total of \$260 million worth of arms during 1985-1989, with \$260 million from the U.S., \$50 million from France, \$5 million from the UK, and \$200 million from Germany.¹⁹⁶

The Bahraini Army

In 1992, Bahrain's military forces totaled a maximum of about 7,450 men, including a number of Pakistanis, Jordanians, and Sudanese. Its army had 6,000 men,

¹⁹¹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table I.

¹⁹² Middle East Economic Digest, November 22, 1991, pp. 13-16.

¹⁹³ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II.

¹⁹⁴ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1985, Washington, GPO, 1985, pp. 133-134.

¹⁹⁵ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 117-118.

¹⁹⁶ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

organized into a tank battalion, two infantry battalions, a special forces battalion, an armored car squadron, two field artillery batteries, and two mortar batteries. A small company or battalion sized element is deployed to King Khalid Military City as part of the GCC's Peninsular Shield Force. Bahrain's tank and infantry battalions are the size of regiments in several other Arab countries and total 1,000 to 1,500 men.

The army mixes U.S. and French equipment, and has been expanding relatively rapidly force such a small force. It has 81 M-60A3 tanks, and 22 AML-90 armored infantry fighting vehicles.¹⁹⁷ Its other armored vehicles include 10 AT-105 Saxon and 111 Panhard AML-M-3/VTT APCs, and 20 Ferret, Shorland, and Saladin armored cars in its security forces. It has 8 105mm and 22 M-198 155mm towed artillery weapons. It also has 10 120mm mortars, limited numbers of 81mm mortars, 15 BGM-71A TOW and TOW-2 anti-tank guided weapons, 26 106mm - 120 mm recoilless rifles, and large numbers of LAWs and other rocket launchers.

The army operates Bahrain's air defenses, which include approximately 10 Crotale launchers, 40 RBS-70 surface-to-air missile fire units, and 20 man-portable Stinger surface-to-air missile launchers. Bahrain also has 10-15 radar guided 35mm Oerlikon air defense guns, and 10-15 obsolescent unguided 40mm anti-aircraft guns.¹⁹⁸

The army is all-volunteer, relatively well paid, has good privileges and housing, and is manned with Sunnis and carefully screened foreigners. Nevertheless, it has many qualitative problems. It has suffered from the loss of a number of Jordanian officers and personnel that served in the army as a result of Jordan's support of Iraq during the Gulf War.¹⁹⁹ Many of its combat elements are still transiting into fully combat capability and are dependent on foreign advisors.

The army has not been able to fully absorb the new equipment Bahrain ordered as a result of the Iran-Iraq and Gulf Wars, and has a number of training, maintenance, support, and logistic problems. It is heavily dependent on foreign technicians, and often lacks the expertise to properly manage and coordinate their efforts. Training and proficiency levels are inadequate if the Army has to go into combat against a foreign force. The army is also poorly equipped for point defense of its own forces and Bahraini territory. The army is, however, probably effective to suppress any rising or coup by any foreseeable radical element in the nation's Shi'ite majority.

¹⁹⁷ Defense News, March 16, 1992, p. 6.

¹⁹⁸ One Bahraini source claims 40 Crotale launchers. This estimate seems to be too high.

¹⁹⁹ There were unconfirmed reports in 1989 that Bahrain was also recruiting Sudanese. If so, some of these may also have left Bahrain's armed forces.

Bahrain faces serious problems in covering all of its territory with its small land forces and limited firepower. Bahrain consists of a total of 33 islands, and it has a very poor ratio of firepower to manpower. It is seeking to obtain the U.S. Multiple Launch Rocket System as a force multiplier, and has ordered nine fire units.²⁰⁰ The MLRS offers about 16 times as much firepower as a 155mm gun and has the range to cover most of Bahrain. It would also provide Bahrain with considerable firepower in any confrontation with Qatar over the Fasht-e-Dibal and Hawar Islands.²⁰¹

Bahrain also badly needs a medium surface-to-air missile system that is linked to an effective command and control system and sensor net. The Improved Hawk would provide such a capability, but it would have to be linked to a forward deployed radar system and the Saudi air defense system to be fully effective. Bahrain cannot provide sufficient warning against an Iraqi or Iranian air attack without the support of Saudi or U.S. AWACS or U.S. ships and maritime patrol aircraft.²⁰²

The Bahraini Navy

Bahrain is slowly building up its naval forces. Its Navy is part of the Ministry of Interior. The Bahraini navy had 300 men in early 1988, and was equipped with two 632-ton Lurssen 62-001 63 meter missile corvettes. These were armed with two twin MM-40 Exocet missile launchers, dual-purpose OTO Melara 76 mm guns, two twin Breda 40mm guns, and two triple 234 mm torpedo tubes, and carried a SA-365F helicopter. Bahrain had two Lurssen TNC(FPB)-45 missile fast patrol boats with four single-cell MM-40 Exocets. Bahrain also had two Lurssen FPB-38 gun boats with two 40 mm twin Bofors, and twenty-two other small patrol boats ranging from 11 to 15.3 three meters.²⁰³

Since that time, Bahrain built its navy up to the point where it had roughly 650-1,000 men **in 1992**. It still had two Lurssen 62-001 63 meter missile corvettes, but it now had four 259-ton Lurssen TNC(FPB)-45 missile fast patrol boats. These were armed with four single-cell MM-40 Exocets, a 76mm gun, and two twin Breda 40mm guns. Bahrain also had two Lurssen 38 fast attack craft armed with twin Breda 40mm guns and mine launchers, a 420 ton LCU support ship, two amphibious craft, 11 small and coastal patrol craft, 7 small craft, 1 Hovercraft, and 1 tug. Four more U.S. landing craft are on order.²⁰⁴

²⁰⁰ Defense News, March 16, 1992, p. 6.

²⁰¹ Defense News, February 2, 1987, p. 15, March 30, 1992, p. 22.

²⁰² Washington Post, December 2, 1987, p. A-25 and December 18, 1987, p. A-25; Defense Electronics, February, 1988, p. 11.

²⁰³ Jane's Defense Weekly, February 13, 1988, p. 247.

²⁰⁴ Defense News, March 16, 1992, p. 16.

While the navy has some good native personnel, it is dependent on foreign advisors and it will take Bahrain some time before it can effectively man and operate its ships. Bahrain's small navy will also remain dependent on expatriate support to maintain and operate some of its more advanced sensors, weapons systems, and communications gear.

Bahrain is, however, getting considerable support from the U.S. Middle East Force, which uses the island's harbor and wharfage facilities. The U.S. Navy has long had close relations with Bahrain's Navy, and these relations have become even closer as a result of the U.S. build-up in the Gulf in 1987-1988, and the Gulf War. Bahrain's naval base at Jufair is also well equipped, and it has excellent commercial shipbuilding and repair capabilities.

Bahrain also has a separate 180 man coast guard. This force is also under the Ministry of Interior. It is equipped with 6 coastal patrol craft, 10 motorized dhows, 3 landing craft, and one Hovercraft. This force has a large number of British advisors and seems to be effective, but is more a police and customs force than a military force.

The Bahraini Air Force

Bahrain's air force acquired its first modern combat aircraft--four F-5Es and two F-5Fs--in 1986. In 1992, it had an 800 man force with 24 combat aircraft and 12 armed helicopters. Its main combat aircraft still consisted of eight F-5Es and four F-5Fs.²⁰⁵ It was, however, deploying 8 F-16C and 4 F-16Ds that it had purchased in 1990. Bahrain also had 12 AB-212 helicopters, eight of which are armed with SS-12 missiles, machine guns, and rockets, and 4 armed Bo-105 helicopters. Three of the unarmed AB-212s are equipped with Bendix 1400 long range maritime radars. Most of these aircraft are based at Sheik Isa Air Base; a large modern air base on the main island.

The operation of Bahrain's combat aircraft is dependent on foreign technical support, but Bahrain's air force has trained some good native pilots. It also has done a reasonably good job of structuring its arms orders. When Bahrain ordered its F-16s from the U.S. in January, 1987 and June, 1988, it did so as part of a \$400 million arms package that included a total of 16 F-16C/D fighters, Sidewinder air-to-air missiles, AGM-65 Maverick air-to-surface missiles, AN/A LE-40 chaff dispensers, and spares, support, and training. It bought AN/ALQ-131 electronic countermeasure pods.²⁰⁶

²⁰⁵ At a cost of \$114 million, and as part of a package including 60 AIM-9-P3 missiles. DMS Intelligence data base.

²⁰⁶ These orders were purchased with the help of Saudi and UAE aid. *Jane's Defense Weekly*, February 7, 1987; *New York Times*, January 28, 1987, p. 2; *Washington Post*, January 21, 1987, p. A-15; *Defense News*, February 2, 1987, p. 15, March 30, 1992, p. 22.

Bahrain has since ordered 8 Apache AH-64 attack helicopters, and its discussing orders of the Patriot with the U.S. and Saudi Arabia. Like the MLRS, the AH-64s furnish the kind of long-range strike system that gives Bahrain the ability to rapidly defend both all the coasts on its main island and all its smaller islands. The U.S. deployed a Patriot battery to Bahrain in August, 1992, because of rising tension with Iraq, and this provide Bahrain's first real air defense system, as well as protection against missile attacks. the Patriot may be technically and financially ambitious for Bahrain, but permanent siting of such a unit would greatly extend the lethality and area coverage of its air defenses, and provide a limited ballistic missile defense capability.²⁰⁷

These orders will give Bahrain a total of 12 F-5s, 16 F-16s, 8 AH-64s, Improved Hawk missiles, and possibly Patriots. Bahrain's air force should be able to complete the transition to the F-16 and A-64 by the mid-1990s. It will, however, remain dependent on foreign maintenance and technical support through at least the year 2000.

Bahrain's command and control system has been improved by the creation of a modern underground operations center at Sheik Isa Air Base, and Bahrain now seems to have secure digital, voice and Teletype links to Saudi Arabia and U.S. ships. Bahrain still, however, seems to do a mediocre job in using these links internally and in cooperating on air and maritime traffic data with Saudi Arabia and the other GCC states. Bahrain has Cossor SSR and Plessey Watchman air traffic control radars, is acquiring them.

Bahrain will only have adequate warning of an Iranian or Iraqi attack, however, if it receives information from an airborne warning and air control platform like the U.S. or Saudi AWACS, and if it is fully integrated into Saudi Arabia's air defense system. There are tentative plans to provide for such integration as part of the Saudi Al Yamamah II program. Both Hughes and Ferranti have made proposals for such integration, and it would provide a major improvement in regional air defense capability, and U.S. air reinforcement capability, particularly if the Saudi-Bahrain system was integrated with that of Kuwait and the UAE.

Bahrain's Internal Security Forces

Bahrain's British and Pakistani led internal security forces include a 9,000 man police force called the Public Security Force, which is larger than the army and part of the Ministry of Interior. It is well armed with light weaponry and has two Hughes 500, two Bell 412 and one Bell 205 helicopters. There seems to be some rivalry between the army

²⁰⁷ Jane's Defense Weekly, March 28, 1992, p. 530.

and police. The police, however, seem to be the dominant internal security force and are supported by elite security, counter-terrorist, and intelligence units. These forces are virtually all Sunni or foreign.

All of Bahrain's military and paramilitary services are under the direct leadership of the Royal Family, and all have good pay and privileges. The army and police are likely to side with the Royal Family, and any Saudi forces that come to the aid of the Royal Family, in any coup attempt or civil crisis.

In broad terms, Bahrain has significantly improved its internal security efforts since a Shi'ite-Iranian coup attempt in December, 1981. It has quietly consulted with both Britain and the United States regarding both internal security assistance and defense against Iran, and discussed contingency plans for Saudi military assistance. Bahrain has also improved its treatment of its Shi'ite majority, its controls over foreign labor, and its surveillance of the relatively limited PFLOAG elements in the country.

None of the current internal or external pressures on Bahrain seem immediately threatening, but it is uncertain how long it can go on without an improvement in the treatment of the Shi'ites, better sharing of wealth, and some broadening of power. Saudi Arabia is now providing Bahrain with the economic support it needs, but it cannot provide it with political cohesion.

The fact that Bahrain and Qatar have kept up their rivalry over the Hawar Islands and the coral reef of Fasht-e-Dibal is also a general warning regarding the ability to develop effective collective security arrangements with the other GCC states. The most serious clash took place between Bahrain and Qatar on April 26, 1986, in which Qatari helicopters fired on construction crews working on Fasht e-Dibal, and Qatari forces landed and seized 30 Bahraini workers. Bahrain claimed these work crews were building a GCC facility to monitor tanker traffic and Qatar claimed it was a Bahraini coast guard base.²⁰⁸ Both nations then called military alerts, and deployed troops. Bahrain reinforced Hawar and Qatar reinforced Fasht e-Dibal. The counter charges included claims that Qatar might seek Iranian aid.²⁰⁹ While GCC attempts at mediation finally succeeded, and a GCC observation team was sent to end the disagreement, this did not prevent another round of accusations and tension in the immediate aftermath of the Gulf War. Bahrain and Qatar were still arguing over the issue in May, 1992.

Strategic Interests and Arms Control

²⁰⁸ Defense and Foreign Affairs Weekly, May 26- June 1, 1986, p. 4.

²⁰⁹ Jane's Defense Weekly, 14 June, 1986, p. 1087, and Defense and Foreign Affairs Weekly, May 26, 1986, p. 4.

Like most of the smaller Gulf states, Bahrain's forces are too small to provide security against a threat from Iran and Iraq, and do not pose a serious threat to any other state. Bahrain does, however, play an important strategic role because it allows the U.S. use of its airfields and ports, and permits the U.S. to maintain a small headquarters and some prepositioned stocks. Bahrain strongly supported the U.S. during Operation Earnest Will in 1987-1988, and supported the UN Coalition in 1990 and 1991.

Bahrain signed a 10 year security agreement with the U.S. in October, 1991. This reflects the fact that Bahrain like Kuwait, is dependent on the U.S. as the only state large enough to provide the naval and other power projection forces capable of defending it against a threat from Iran or Iraq. The agreement calls for more joint exercises, U.S. access to Bahrain's ports and airfields, and prepositioning of an undefined amount of U.S. equipment, probably at Manama. This is one of the few formal agreements to strengthen cooperation between the U.S. and a southern Gulf state to emerge after the Gulf War, and strengthening Bahrain remains a Western strategic priority.²¹⁰

The major uncertainty Bahrain faces is internal reform, and this is easier to call for than implement. Unless Bahrain receives significant external economic aid, it will find it very difficult to coopt its Shi'ite majority into a stable representative government. What seems to be needed is slow reform, with a steady increase in Shi'ite officials, and reduction in corruption, nepotism, and favoritism. Some members of Bahrain's ruling family favor such reforms, as do many of its technocrats and military. The question is whether they will actually take place.

²¹⁰ Jane's Defense Weekly, November 9, 1991, p. 869; Washington Post, October 28, 1991, p. 5-A.

Qatar²¹¹

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 1 | - | - | - | - | - |
| 1973 | 3 | - | 4 | 78 | - | - |
| 1982 | 6 | 24 | 9 | 948 | 270 | - |
| 1988 | 7 | 24 | 13 | 1,800 | 30 | - |
| 1991 | 8 | 30 | 20 | 1,900 | - | - |

Qatar is a small peninsular nation that occupies a strategic position in the central portion of the southern Gulf, but is shielded from most threats from the northern Gulf by Saudi Arabia and Bahrain.. It has an area of 11,000 square kilometers, and a 563 kilometer coastline, Its borders with the UAE and Bahrain are in dispute, but it has only 60

²¹¹ The military manpower, force strength, and equipment estimates in this section are made by the author using a wide range of sources, including computerized data bases, interviews, and press clipping services. Most are impossible to reference in ways of use to the reader. The force strength statistics are generally taken from interviews, and from the sources reference for each paragraph. They also draw heavily on his The Gulf and the Search for Strategic Stability (Boulder, Westview, 1984) and The Gulf and the West (Boulder, Westview, 1988).

Extensive use has also been made of the annual editions of the International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition, and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv), especially the 1989-1990 edition and working materials from the coming edition. Material has also been drawn from computer print outs from NEXIS, the United States Naval Institute data base, and from the DMS/FI Market Intelligence Reports data base. Other sources include the Military Technology "World Defense Almanac for 1991-1992," published in early 1992; Foreign Affairs Division, "Middle East Arms Control and Related Issues," Washington, Congressional Research Service, 91-384F, May 1, 1991; and Middle East Economic Digest, "MEED Special Report: Defense," Volume 35, December 13, 1991.

Weapons data are taken from many sources, including computerized material available in NEXIS, and various editions of Jane's Fighting Ships (Jane's Publishing); Jane's Naval Weapons Systems (Jane's Publishing); Jane's Armor and Artillery (Jane's Publishing); Jane's Infantry Weapons (Jane's Publishing); Jane's Military Vehicles and Logistics (Jane's Publishing); Jane's Land-Base Air Defense (Jane's Publishing); Jane's All the World's Aircraft (Jane's Publishing); Jane's Battlefield Surveillance Systems, (Jane's Publishing); Jane's Radar and Electronic Warfare Systems (Jane's Publishing); Jane's C³I Systems (Jane's Publishing); Jane's Air-Launched Weapons Systems (Jane's Publishing); Jane's Defense Appointments & Procurement Handbook (Middle East Edition) (Jane's Publishing); Tanks of the World (Bernard and Grafe); Weyer's Warships (Bernard and Grafe); and Warplanes of the World (Bernard and Grafe).

Other military background, effectiveness, strength, organizational, and history data are taken from Anthony H. Cordesman, The Gulf and the Search for Strategic Stability, Boulder, Westview, 1984, The Gulf and the West, Boulder, Westview, 1988, and Weapons of Mass Destruction in the Middle East, London, Brassey's/RUSI, 1991; Anthony H. Cordesman and Abraham Wagner, The Lessons of Modern War, Volume II, Boulder, Westview, 1989; the relevant country or war sections of Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991; Department of Defense and Department of State, Congressional Presentation for Security Assistance Programs, Fiscal Year 1993, Washington, Department of State, 1992; various annual editions of John Laffin's The World in Conflict or War Annual, London, Brassey's, and John Keegan, World Armies, London, Macmillan, 1983.

kilometers of land boundaries: 40 kilometers with Saudi Arabia and 20 kilometers with the UAE.

Qatar survives on oil and gas revenues, and has relatively high revenues per capita. Its total national per capita income is about \$20,000 per year, and it has the largest ratio of Rolls Royces to total population of any nation in the world. Qatar only has limited total oil reserves. It had produced about 4.4 billion barrels of oil by the end of 1990, and had a moderate reserve to production ratio of 19/1.²¹² As of January 1, 1992, it had estimated proved oil reserves of 2.6 billion barrels, and total reserves of 3.7 to 4.0 billion barrels depending. It produced oil at a monthly rate of 140,000 to 400,000 million barrels per day during 1990 and 1991. Qatar's North Dome or North Field also, however, has gas reserves in excess of 380 trillion cubic feet, with producible reserves of about 162,000 billion cubic feet. This makes Qatar the fourth or fifth largest nation in the world in terms of total gas reserves.²¹³

Qatar was once one of the British Trucial States. It was the last small Gulf state to come under British protection, and did not join the Trucial States until 1916 -- after repudiating Ottoman sovereignty during World War I. Oil was first discovered in Qatar in 1949, and current estimates indicate that it has

Once Britain decided to leave the Gulf in January 1968, it attempted to make Qatar part of a federation that included Bahrain and the seven sheikdoms that later became part of the United Arab Emirates (UAE). While this federation was established in July, 1968, both Bahrain and Qatar were then far more developed states than the other seven sheikdoms, and had little reasons to join a federation that promised to involve them in at least as many political and economic problems as it would solve. As a result, Qatar chose independence in 1971, when Britain left the Gulf.

Qatar has since been a monarchy ruled by the al-Thani family, which dominates most of the cabinet. The al-Thani family has been divided by internal quarrels in the past, however, and the current Sheik, Khalifa bin **Hamad** al Thani deposed his relative Admad bin Ali al-Thani in a family coup in 1972. While the sheik has now ruled for twenty years,

²¹² *Oil and Gas Journal*, September 23, 1991, p. 62.

²¹³ *OJJ Special, Oil and Gas Journal*, December 30, 1991, pp. 43-49; Other estimates indicate 2 billion barrels of proven reserves and 2 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the *Oil and Gas Journal*, September 23, 1991, p. 62, and his "Persian Gulf Oil: Its Critical Importance to World Oil Supplies," Congressional Research Service 91-220 SPR, March 5, 1991. Estimates of oil reserves have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerate its reserves and relative importance. Gas estimates are based upon *The Middle East*, May, 1991, p. 33.

and his son, Sheik Hamad bin Khalifa al-Thani, is now both the heir apparent and the defense minister, this does not necessarily assure the succession or internal stability. While there is no organized internal opposition and Qatar has an appointed Majlis or assembly, the al-Thani family is a tribal group with over 2,000 members, dominates the government, and has long taken a large share of the country's wealth. Its refusal to share the nation's wealth, and continuing squabbles among the Royal family, have led to at least some disaffection among younger Qataris.

As has been noted earlier, Qatar has a long standing dispute with Bahrain over control of the Hawar islands and the reef of Fasht-e-Dibal off of Qatar's northwest coast. These islands demarcate the border between Bahrain and Qatar, and are sometimes said to involved offshore oil rights. However, the dispute is more a feud between rival royal families than one involving serious economic issues. Qatar has generally been more moderate over the issue than Bahrain and has quietly tolerated a Bahraini military presence on the Hawar Islands.

Qatar provided the UN Coalition with strong support during the Gulf War, and has recently improved its relations with the United States. It has, however, seen the U.S. presence in Bahrain as a potential aid to Bahrain's desire for full control of the Hawars and Fasht-e-Dibal. As a result, Qatar has been cautious about its relations with the West, and has also sometimes distanced itself from the U.S. to reduce the risk of problems with its large expatriate population.

Qatar has also been careful to avoid tying its security too closely to Saudi Arabia, and Qatari forces had a petty border clash with Saudi Arabia on September 30, 1992. This clash took place at a small outpost at Khofuou, about 80 miles southeast of Doha. Two Qataris were killed and a third taken prisoner.

Qatar has been relatively aggressive in improving its relations with Iran. It has tentatively agree to obtain fresh water from Iran's Karun River by financing a \$13 billion pipeline under the Gulf, and discussed joint oil and gas projects with the Iranian government. Qatar did, however, support the UAE against Iran during April through September, 1992, when Iran seized full control of Abu Musa and expelled the UAE from the southern half.²¹⁴

Qatari Military Manpower, Military Expenditures, and Arms Transfers

²¹⁴ Le Monde, January 29, 1992, p. 16; Middle East News Network, January 6, 1992; Washington Post, October 1, 1992, p. A-19; Washington Times, October 1, 1992, p. A-7.

Qatar has never maintained military large forces, and lacks the manpower to do so. Its total population is 518,479, with a growth rate of 5.3%. Nearly half the population, and over 85% of its 104,000 man work force, are non-Qatari. While Qatar is 95% Muslim, it is ethnic divided into 40% Arab, 18% Pakistani, 18% Indian, 10% Iranian, and 14% other. Qatar is a comparatively wealthy state even by Gulf standards. Its GNP is \$6.6 billion, and its per capita income is over \$12,500.²¹⁵

Qatar has, however, attempted to improve its military forces since the start of the Iran-Iraq War in 1980. Qatar's military manpower slowly increased from 5,000 in the early 1980s to 6,000 thousand in 1985, and 7,500 in 1992. There are obvious reasons for this small force. Even if one ignores the fact that 85% of work force is foreign, the total male manpower pool is only about 235,000, counting the population from 15-49. The CIA estimates that 126,000 males are fit for military service, and that 4,242 reach military age each year. The IISS estimates that there are 17,400 males between the ages of 13 and 17, 17,800 between the ages of 18 and 22, and 45,640 between the ages of 23 and 32.

Qatar increased its annual military expenditures from around \$260 million in 1978 and \$475 million in 1979, to \$604 to \$780 million annually in 1982 through 1985. Reporting of the Qatari defense budget has been erratic. ACDA does not report expenditures after 1985. The IISS reports that Qatar spent \$154.2 million in 1987, and \$1.44 billion in 1991.²¹⁶ Qatar seems to have spent about 10% of its GDP on defense in recent years, and 20% of its central government expenditures.²¹⁷

Qatar's arms imports have varied sharply by year. They totaled \$20 million in 1978, \$20 million in 1979, \$90 million in 1980, \$270 million in 1981, \$240 million in 1983, \$210 million in 1984, negligible in 1985, \$80 million in 1986, negligible in 1987, \$30 million in 1988, and were negligible in 1989.²¹⁸

The bulk of Qatar's arms have come from France. Oman imported a total of \$765 million worth of arms during 1979-1983, with \$10 million from the U.S., \$440 million from France, \$310 million from the U.K., and \$5 million from other countries.²¹⁹ Oman

²¹⁵ IISS, Military Balance, 1991-1992; Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 62, 104 and 117; CIA, World Factbook, 1991, pp. 258-259

²¹⁶ IISS, Military Balance, 1990-1991 and 1991-1992 editions.

²¹⁷ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, p. 60.

²¹⁸ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II.

²¹⁹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1985, Washington, GPO, 1985, pp. 134.

imported a total of \$360 million worth of arms during 1984-1988, with \$10 million from the U.S., \$300 million from France, \$20 million from the U.K., and \$30 million from other countries.²²⁰ ACDA changed its way of reporting arms sales by source in 1992, According to this reporting, Qatar imported a total of \$160 million worth of arms during 1985-1989, worth \$10 million from the U.S., \$100 million from France, \$20 million from the UK, and \$30 million from Latin America.²²¹

The Qatari Army

The Qatari armed forces are commanded by members of the royal family, and Major General Sheik Hamad ibn Khalifa al-Thani combines the jobs of the heir apparent, Minister of Defense, and Commander in Chief. Two other members of the al-Thani family serve as Commander of the Air Force and Chief of the Royal Family. Officers and enlisted men are recruited from members of the royal family, and the leading desert tribes. Qatar has drawn heavily in the past on nomadic tribes which cross the Qatari-Saudi border, but has been forced to increase its intake of urbanized Arabs. Pay and privileges are good, and there have been no visible signs of disaffection within the military.

Qatar's main military problem is total manpower. Qatar's military forces total only about 11,000 men, including some paramilitary forces. It lacks the native manpower to field significant military forces. While it has tried to recruit citizens and Bedouin, it is still dependent on foreign Arab and Pakistani recruits to fill out its combat units. It also seems to have British, Egyptian, French, Jordanian and Pakistani "advisors" who play an active military role. Qatar has, however, created growing pool of native personnel, who train in Britain, France, Jordan, Pakistan, and Saudi Arabia. An increasing number of young Qataris have joined the armed forces in recent years, and a steadily rising number of competent young native officers is being trained.

The Qatari army has a nominal strength of 7,000 to 8,000 men, and its order of battle includes an armored battalion, an infantry brigade of three mechanized infantry battalions, a Royal Guard regiment, one artillery battery, a special forces battalion, a field artillery regiment, and one Rapier surface-to-air missile battery. These are extremely small combat units by Western standards, since the total manpower in the Qatari army is too small to fill out even one Western regimental formation plus support. The royal guard and

²²⁰ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 134.

²²¹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

special forces units do, however, seem to be well trained as security and guard forces. The army is largely French equipped and British and Jordanian trained. It played a creditable role in the battle of Khafji during the war to liberate Kuwait.

The army is still lightly equipped. In 1992, it had 24 AMX-30 tanks, and a diverse mix of other armored fighting vehicles, including 40 AMX-10P/PCs, 30 AMX-VTTs, 180 VAB/VTTs, 40 EE-9 Cascavals, and 8 V-150 Mark 3 commando armored combat vehicles, plus 8 Saladin, 12 Ferrets and 25 Saracen armored cars. The Ferrets are in storage, and additional AMX-10Ps were on order. Its anti-tank weapons defenses consisted of 25 HOT and 25 Milan anti-tank guided missile launchers, and 40-50 106mm recoilless rifles. It also had an unknown number of light anti-tank rocket launchers.

Its artillery strength was very limited. It had 18 AMX Mark F-3 155mm self-propelled artillery weapons, and eight obsolete 25 pound (87 mm) howitzers. The Army also has limited numbers of mortars. Qatar did, however, order additional self-propelled howitzers in 1991. It also had 5 ASTROS II and 10 BM-21 122mm multiple rocket launchers, 15-209 120mm mortars, and 10 81mm mortars.²²²

Qatar's forces had only limited ability to use this armor and artillery. Some mechanized infantry battalions were reasonably effective, but most forces could at best conduct limited defensive operations. The army has only limited maneuver training, has only token tank warfare capability, and cannot use its artillery effectively in combined arms, counter-battery fire, or beyond visual range targeting.

The Army had 12 Rapier and 5 Roland fire units as short range air defense systems, and Blowpipe and SA-7 man portable air defense missile systems. This gave it a limited capability to cover one point target, or provide a loose defense screen over a wider area. Qatar bought at least 12 Stinger units stolen from the Afghan rebels. the U.S. refused to support these systems, however, and demanded their return. It is unclear, however, that Qatar has the powerpacks to keep the Stingers operational.²²³ Mistral air defense systems are on order, but it is unclear whether these will significantly improve Qatar's capabilities.

The army can probably deal with a threat from Bahrain, but has little maneuver, combined arms, or combined operations capability. It should be adequate for internal security purposes, and its main function seems to be border patrol, defense of the territory disputed with Bahrain, and defense of the capital, oil, and desalinization facilities. The

²²² These numbers are very uncertain. They are based on interviews and have been round to the nearest 5.

²²³ Los Angeles Times, April 1, 1988, p. B-4.

army has no real capability to operate at any distance from its peacetime casernes without foreign logistics, service support, and combat support.

The Qatari Navy

Qatar's navy has an authorized strength of about 1,200 to 1,500 men, many of which are expatriates.²²⁴ It has French and Pakistani advisors. Its main combat ships consist of three Combattante III 395-ton missile fast patrol boats made in the early 1980s. These are equipped with 8 Exocet missiles, 1 76mm Oto Melara gun, 2 Breda 40mm guns, and four twin 35mm guns. It also has six Vosper Thornycroft 33.5 meter patrol boats armed with four twin 35mm guns made in the mid-1970s. These ships are operated with a reasonable degree of professionalism by largely expatriate crews. They are adequate for local missions, but lack effective air defense and sensors for surveillance and target acquisition.

Its other ships consist of 6 Damen Polycat 14.5 meter patrol boats (which may be operated by the Marine police). The Marine police also operate two 14.5 meter patrol boats, two 13.5 meter patrol boats, 25 Spear-class patrol boats, two Fairey Marine Interceptor-class rescue and assault boats, and five P-1200 patrol boats. There are two tugs.

Qatar has ordered four Vita-class 350-400 ton fast attack boats from Vosper-Thornycroft in June, 1992. These are 56 meter vessels equipped with a Thomson-CSF sensor and command suite, the NCS TACTICOS fully distributed combat management system, MM-40 Exocet ship-to-ship missiles, an Oto Melara 76mm gun, and the Signal Goalkeeper 30mm close-in defense system. They are to be delivered in 1996-1998.

Qatar has a small coastal defense force. It has a number of land based batteries, each of which have three MM-40 Exocet launchers with four missiles each. Its main base is near Doha, but it is building a naval base at Halul Island. Qatar is too small to play more than the most limited coastal defense role.

Training and operating standards are mediocre to poor, and the Qatari Navy is still in the process of creating a modern force capable of more than short operations. Almost all maintenance and logistic support is done on a contract basis, and **only** seems to be adequate for peacetime purposes.

The Qatari Air Force

Qatar's air force has only a little over 800 men, and is based at the military airfield at Doha. Many of its pilots and officers are from Qatar, but it is heavily dependent on French

²²⁴ Some estimates put actual manning as low as 700.

and other foreign support of training, maintenance, logistics, and many C³I functions. It has 18 combat aircraft and 20 armed helicopters.

These aircraft include 6 Alphajets, 12 Mirage F-1E/Ds, and 20 armed SA-342s (12 armed with HOT and 8 with Exocet).²²⁵ Qatar has AM-39 air-to ship missiles for its Mirages, and they are equipped with R-530F Super and R-550 Magic II missiles. Only Qatar's Mirages are really combat capable, and it has had serious maintenance and advanced training problems with all its combat aircraft.

Qatar has 12 Westland Commando Mark 2 helicopters. It also has 4 transport aircraft and two SA-341G liaison helicopters.

Qatar has Plessey land based warning and surveillance radars, and an underground command center at Doha airfield. This command center is similar in some ways to the one in Bahrain and the ones in Saudi Arabia, but it is unclear what kind of data links it has to other countries. Like Bahrain, it would need assistance from a Saudi or U.S. AWACS to provide adequate warning of an Iranian or Iraqi attack, and would benefit greatly from integration into the Saudi air defense system. The air force has shelters for its Mirage fighters, and facilities and stocks are good. It trains with Saudi Arabia, and has had French and British advisors.

The Qatari Air Force has six to nine Roland surface to air missile launchers, 10-12 Rapiers, SA-7s, and has some U.S. Stingers it bought from a source that stole them from the Afghan freedom fighters.²²⁶ Unless these Stinger systems have been serviced, they no longer of operational. Qatar is studying the improvement of its air defense system. It has considered an order of Hawk MIM-23B surface-to-air missiles, and two Shahine batteries, but it is unclear what it will purchase. Qatar has also negotiated to buy a squadron of modern fighters like the F-16 or Mirage 2000, but funding is now uncertain. Given probable delivery schedules, Qatar will lack of modern land or air-based air defense systems through the year 2000, and have to rely on Saudi Arabia for most of its air and naval defense.

Qatari Paramilitary Forces

Qatar has a large 5,000-6,500 man police force with some paramilitary elements. They are organized along British lines, with special internal security forces. This force is equipped with three Lynx, two SA-342, and two Gazelle helicopters. It includes a large number of expatriates, including Egyptians, which seem to be carefully chosen to ensure

²²⁵ Three Hunter FGA-78/T-79 and 1 T-79 seem to be in storage.

²²⁶ The U.S. demanded their return and was refused.

their loyalty. There are special elements that deal with the control of foreign workers, immigration, intelligence, palace security, and surveillance operations. Like Bahrain, Qatar often uses informers rather than active repression.

Qatar has not experienced major internal security problems in recent years. The royal family has slightly improved the sharing of its oil wealth in recent years, and while Qatar has some Islamic fundamentalist elements, its society is gradually becoming more modernized without becoming radicalized. The Al-Thani family has done a relatively good job of maintaining living standards and private sector opportunities in spite of declining oil revenues, and its recent cuts in government budgets and development activity have so far been healthy.

While there were rumors of a Libyan and Iranian Shi'ite-backed coup attempt in September, 1983, these reports have never been confirmed. What seems to be more serious are continuing rumors of feuding within the ruling Al-Thani family. There is a long standing dispute within the royal family because the current ruler, Sheik Ahmad bin Ali al-Thani named his son his heir in 1977, rather than his younger brother Sheik Suhaim. This produced sporadic tension until Suhaim's death from a heart attack in 1985. Suhaim provided arms to some of the more distant members of the royal family, and sought Saudi support for his claims with at least limited success. This has led to some tension between Qatar and Saudi Arabia.

These rivalries surfaced again during Qatar's 1986 border confrontation with Bahrain. There were rumors that Sheik Nasr bin Hamed, another younger brother of the ruler, had been shot in a family quarrel. The information minister, Isa Ghanim al Kawari, issued a public denial of reports that he himself had been shot. It is obvious that some tensions still remain within the royal family over the control of key ministries, if not the succession.

Qatar's internal security problems with Shi'ite minorities and foreign workers seem limited. Although the nation is about 15% Shi'ite, there have been few signs of support for Khomeini. The fact that 90% of Qatar's labor force is expatriate, and over 60% of its total population is expatriate, has not presented serious problems except for workers who stay or come without work permits. There are few reports of troubles between Qatar and its comparatively large population of expatriate Iranians. Qatar has, however, greatly strengthened its security controls--particularly of Iranians and Shi'ites.

Strategic Interests and Arms Control

Qatar's forces currently pose a threat to no one, with the possible exception of a pointless feud with Bahrain over the Hawar Islands off of Qatar's northwest coast. While

Qatar cannot absorb large arms transfers, its support of the UN Coalition in the Gulf War, and of Saudi forces in the battle of Khafji, shows that its forces can fight. Qatar can play a useful -- if somewhat symbolic -- southern Gulf efforts to create an effective regional force if it and its neighbors are willing to embark on a serious effort at cooperation.

Like Bahrain and Kuwait, Qatar has also signed a security agreement with the U.S. This agreement was signed in June, 1992, and provided for enhanced cooperation in deploying U.S. air reinforcements. It represented a significant advance in U.S.-Qatari relations, which builds on their cooperation during the Gulf War, and showed that Qatar was willing to risk Iranian displeasure to improve its security position. Qatar still, however, does face the problem of internal reform and particularly of reaching some long term decision as to how it will deal with its massive dependence on foreign labor.

UAE ²²⁷

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 4 | - | - | - | - | - |
| 1973 | 11 | - | 12 | 61 | 14 | - |
| 1982 | 44 | 118 | 52 | 1,980 | 50 | - |
| 1988 | 43 | 136 | 65 | 1,587 | 60 | - |
| 1991 | 48 | 130 | 100 | 2,590 | - | - |

The United Arab Emirates (UAE) dominates the southern Gulf east of Bahrain and Qatar, and reaches the Indian Ocean by dividing the main territory of Oman from its enclave on the Indian Ocean. Its strategic importance lies in both its location and the fact that it possess around 5% of the world's oil reserves. The effective defense of the Gulf

²²⁷The military manpower, force strength, and equipment estimates in this section are made by the author using a wide range of sources, including computerized data bases, interviews, and press clipping services. Most are impossible to reference in ways of use to the reader. The force strength statistics are generally taken from interviews, and from the sources reference for each paragraph. They also draw heavily on his The Gulf and the Search for Strategic Stability (Boulder, Westview, 1984) and The Gulf and the West (Boulder, Westview, 1988).

Extensive use has also been made of the annual editions of the International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition, and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv), especially the 1989-1990 edition and working materials from the coming edition. Material has also been drawn from computer print outs from NEXIS, the United States Naval Institute data base, and from the DMS/FI Market Intelligence Reports data base. Other sources include the Military Technology "World Defense Almanac for 1991-1992," published in early 1992; Foreign Affairs Division, "Middle East Arms Control and Related Issues," Washington, Congressional Research Service, 91-384F, May 1, 1991; and Middle East Economic Digest, "MEED Special Report: Defense," Volume 35, December 13, 1991.

Weapons data are taken from many sources, including computerized material available in NEXIS, and various editions of Jane's Fighting Ships (Jane's Publishing); Jane's Naval Weapons Systems (Jane's Publishing); Jane's Armor and Artillery (Jane's Publishing); Jane's Infantry Weapons (Jane's Publishing); Jane's Military Vehicles and Logistics (Jane's Publishing); Jane's Land-Base Air Defense (Jane's Publishing); Jane's All the World's Aircraft (Jane's Publishing); Jane's Battlefield Surveillance Systems, (Jane's Publishing); Jane's Radar and Electronic Warfare Systems (Jane's Publishing); Jane's C³I Systems (Jane's Publishing); Jane's Air-Launched Weapons Systems (Jane's Publishing); Jane's Defense Appointments & Procurement Handbook (Middle East Edition) (Jane's Publishing); Tanks of the World (Bernard and Grafe); Weyer's Warships (Bernard and Grafe); and Warplanes of the World (Bernard and Grafe).

Other military background, effectiveness, strength, organizational, and history data are taken from Anthony H. Cordesman, The Gulf and the Search for Strategic Stability, Boulder, Westview, 1984, The Gulf and the West, Boulder, Westview, 1988, and Weapons of Mass Destruction in the Middle East, London, Brassey's/RUSI, 1991; Anthony H. Cordesman and Abraham Wagner, The Lessons of Modern War, Volume II, Boulder, Westview, 1989; the relevant country or war sections of Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991; Department of Defense and Department of State, Congressional Presentation for Security Assistance Programs, Fiscal Year 1993, Washington, Department of State, 1992; various annual editions of John Laffin's The World in Conflict or War Annual, London, Brassey's, and John Keegan, World Armies, London, Macmillan, 1983.

against Iran, and of the flow of oil through the Gulf, requires both the support of the UAE and its defense.

The UAE is a moderate-sized state by southern Gulf standards, and its roughly the size of Maine. It has a land area of about 83,600 square kilometers. Virtually all of its population of 2.4 million is concentrated along its 1,448 kilometer coastline on the Gulf. Its land boundaries, however, total 1,016 kilometers -- 20 kilometers with Qatar, 586 kilometers with Saudi Arabia, and 410 kilometers with Oman. These figures are approximate. The border with Qatar is in dispute and the boundaries with Oman and Saudi Arabia are undefined.

The UAE still claims three islands that the Shah of Iran seized from it on the day British forces evacuated the Gulf. These islands are strategically located in the lower Gulf and near the Straits of Hormuz and include Jazireh-ye Abu Musa, Jazireh-ye Tonb-e Bozorg (Greater Tunb), and Jazireh-ye Tonb-e Kuchek (Lesser Tunb). Iran, however, took total control of Abu Musa in the summer of 1992. Iran did so largely because it claimed that it was not receiving a full share of the oil revenues from the offshore facilities around the Island, but it expelled 100 workers that have UAE, rather than Iranian visa. Iran broke off talks on the issue on September 28, 1992, after the UAE chose to make the issue the subject of GCC and Arab League diplomacy and renewed its claims to the two Tonbs.

The UAE cumulatively has relatively large oil resources, but these are divided by sheikdom. It produced about 12.6 billion barrels of oil by the end of 1990, and had a moderate reserve to production ratio of 75/1.²²⁸ As of January 1, 1992, Abu Dhabi had estimated proved oil reserves of up to 92.2 billion barrels, and gas reserves of 182,800 billion cubic feet. Dubai had estimated proved oil reserves of up to 4 billion barrels, and gas reserves of 4,600 billion cubic feet. Ras al Khaimah had estimated proved oil reserves of up to 0.4 billion barrels, and gas reserves of 1,200 billion cubic feet, and Sharjah had estimated proved oil reserves of up to 1.5 billion barrels, and gas reserves of 10,700 billion cubic feet. If these claims were correct, the UAE as a whole had about 13% of the world's total oil reserves.²²⁹

²²⁸ Oil and Gas Journal, September 23, 1991, p. 62.

²²⁹ *OJJ Special*, Oil and Gas Journal, December 30, 1991, pp. 43-49; Other estimates indicate that the UAE as a whole has 56.2 billion barrels of proven reserves and 49 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the Oil and Gas Journal, September 23, 1991, p. 62. These estimates have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerates its reserves and relative importance. Washington Post, September 25, 1992, p. A-31, September 29, 1992, p. A-15; Christian Science Monitor, September 18, 1992, p. 6; New York Times, September 13, 1992, p. A-22, September 17, 1992, p. A-19.

The UAE situation in regard to water is radically different. The UAE has only about 0.42 cubic kilometers of internal renewable water resources, which is very low. It provides about 429 cubic meters per person per year, less than one-sixth the total for a citizen of the U.S.²³⁰

The Uncertain Union of Arab Emirates

The UAE was formed on December 2, 1971, out of seven small sheikdoms -- Abu Dhabi, Dubai, Sharjah, Fujairah, Umm Al-Quwain, Ajman, and Ras al-Khaimah. It is a federation governed by a Supreme Council of Rulers, a prime minister, and a Council of Ministers. The federation has specific powers delegated by the ruling sheiks of each state, which make up the Supreme Council of Rulers. All other powers are reserved to the Sheiks. The Chief of state is Sheik Zaid bin Sultan al Nuhayyan, the ruler of Abu Dhabi. The Vice President is Sheik Maktum bin Rashid al-Maktum, the ruler of Dubai.

The sheikdoms that make up the UAE were part of the British Trucial States, which were bound by a series of treaties signed in 1820, 1861, 1880 and 1892. The treaties did little to affect the domestic relations of each sheikdom, but gave Britain responsibility for their foreign relations and defense, prohibited them from conducting their own foreign relations, and placed British advisors at each court. Britain signed these treaties to secure the western approaches to India, and limit Turkish, Iranian, and other European expansion in the Gulf, and to halt piracy in the region. The treaties offered the sheiks of the southern Gulf protection against their more powerful neighbors, a limited amount of security from each other, subsidies and more stable trade.

Each of the sheikdoms continued to be rivals in spite of the creation of treaties, and each had a long history of border feuds and struggles for power within its ruling royal family. Three of the states, however, emerged as more important than the others. Abu Dhabi became a major oil producer after 1959, Dubai became the commercial capital and found oil reserves of its own, and Sharjah was the center of British military operations in the Trucial States and had a small British trained military force called the Trucial Oman Scouts.²³¹

Abu Dhabi experienced serious problems with Saudi Arabia in the early 1950s, in a dispute that is still well remembered in the UAE, Oman, and Saudi Arabia. Abu Dhabi and Saudi Arabia's borders had never been demarcated, and were tied as much to tribal and

²³⁰ Los Angeles Times, January 28, 1992, p. C-1.

²³¹ Formed in 1966, when Britain began its withdrawal from Aden. The main British military base was at Bahrain.

water rights as to geographic contiguity. The most important area in the undemarcated area was the Buraimi Oasis, which was an important agricultural area, source of water, and a potential oil field. In 1952, Saudi troops occupied the Burami Oasis with the aid of Bedouin forces. Abu Dhabi asked for the aid of Oman and Oman deployed troops near the area.

Saudi Arabia, Oman, and Abu Dhabi agreed to keep their forces in place on October 26, 1952. They then agreed to formal arbitration in 1954. Saudi Arabia and Oman then withdrew their forces, leaving small police units in the area. Saudi Arabia, however, became actively involved in supporting a revolt in Oman, in which Imam Ghalib bin Ali attempted to seize power from the Sultan. The Saudi used the Burami Oasis to move arms and money to the Imam, and Britain became involved as the protector of Abu Dhabi and de facto protector of Oman. On October 26, 1956 the British trained and commanded Trucial Oman Scouts and the personal guard of the Sultan of Oman occupied the Burami Oasis after a brief round of fighting.

The rights and wrongs of this issue are as unclear as those of most of the minor tribal squabbles in the Gulf, and Abu Dhabi has since cooperated closely with Saudi Arabia in many areas. Nevertheless, the Burami Oasis dispute still makes the UAE and Oman cautious about Saudi Arabia's emergence as a military power and potential domination of the GCC.

When Britain decided to leave the Gulf in 1968, it tried to make all seven sheikdoms part of a larger federation that included Bahrain and Qatar. Bahrain and Qatar chose to become independent states, but Abu Dhabi, Dubai, Sharjah, Fujairah, Umm Al-Quwain, Ajman, and Ras al-Khaimah were too small and fragile to seek independence on their own. They were vulnerable to the threat posed by the Baath, and various Marxist movements, and to claims by Iran and Saudi Arabia.

Ras al-Khaimah did try to stand on its own initially, in part because of a long standing rivalry with a branch of the royal family in Sharjah. However, Ras al-Khaimah soon came into conflict with Iran. Iran claimed the Greater and Lesser Tunb Islands and the island of Abu Musa in the Gulf, and seized them on November, 30 1971 -- shortly after British forces left the Gulf. Several Iranian soldiers and four Ras al-Khaimah policemen died in the fighting during Iran's seizure of Greater Tunb island.²³² In addition, a shift in the royal family in Sharjah brought a group more acceptable to Ras al-Khaimah to power. As a result, Ras al-Khaimah joined the federation that became the United Arab Emirates in 1972

²³² Herbert K. Tillema in International Conflict Since 1945, Boulder, Westview, 1991, p. 149.

-- although the regional ambitions of its Sheik Saqr bin Muhammad al-Qasimi proved to be a source of continuing problems and led to considerable tension with Oman.

The history of the UAE after 1971 has not been peaceful. It has involved tension with Iran, and Abu Dhabi only resolved a long standing struggle with Saudi Arabia over control over the Buraimi Oasis in late 1974. Internally, its history often consisted of continuing rivalry among its member states, and sometimes rivalry within the ruling family of a given sheikdom. The often bloody rivalry between and within sheikdoms may, however, have become largely a thing of the past.

The only near coup that has occurred since the formation of the UAE occurred on June 17, 1987, when the Sheik of Sharjah, Sultan bin Mohammed al-Qasimi was deposed by his brother Abd al-Aziz Mohammed al-Qasimi. The coup occurred while the Sheik was in Britain, and immediately raise the issue of the legitimacy of all rulers in the UAE. At the same time, Abu Dhabi backed Abd al-Aziz Mohammed al-Qasimi, and Dubai backed Sultan bin Mohammed al-Qasimi, and a real threat developed that Abu Dhabi and the troops of Sharjah might support Abd al-Aziz Mohammed al-Qasimi, while Dubai sent forces to aid Sultan bin Mohammed al-Qasimi. The Supreme Council of Rulers eventually resolved this issue by persuading the two brothers to accept a compromise where Sultan bin Mohammed al-Qasimi returned to power, but Abd al-Aziz Mohammed al-Qasimi became crown prince and head of a ruling council. This compromise proved unstable and factions in Sharjah sometimes still divide in loyalty and take sides in alignment with Abu Dhabi and Dubai.

Tensions continue between Abu Dhabi and Dubai . Abu Dhabi and Ajman tend to be allied and support the other Arab Gulf states, while Dubai often cooperates with Sharjah and Umm Al-Quwain and all have closer relations with Iran. Fujairah divides Oman and has a special interest in relations with Oman. Ras al-Khaimah often purses an independent course. This independence reached its height in 1977, when the ruling sheik attempted to seize part of Oman's territory and offshore oil fields. His troops were more than half Omani, however, an exhibited considerable independence of their own. They refused to attack Oman and the Sheik was forced to back down. It also led the UAE to suddenly raise military pay by 50%.

Abu Dhabi has clearly emerged as the largest and most powerful member of the UAE, because of its much larger oil reserves, and Sheik Zaid has emerged as its de facto leader. The UAE has also steadily increased its federal institutions with the aid of an increasingly stronger group of technocrats. Nevertheless, this has not prevented a long series of struggles for prestige between Abu Dhabi, Dubai and the other sheikdoms. In spite of an

agreement to integrate their military forces in May, 1976, Abu Dhabi and Dubai have continued to build up military forces they have never fully integrated. This is partly the fault of Sheik Zaid of Abu Dhabi. He appointed his son as commander of the UAE armed forces in 1978, without consulting Sheik Rashid of Dubai. as a result, Sheik Rashid effectively ended the integration agreement and created his own Central Military Region Command. He set up his own armored, special forces, and air units, and bought his own air defense weapons.

Umm Al-Quwain, Fujairah, Ras al-Khaimah, and Sharjah all have their own national guard forces. The fact Sharjah also has a limited amount of oil production, and Ras al-Khaimah began to produce oil in 1977, has helped lead these sheikdoms maintain police units, intelligence branches, security forces, and military forces of their own.

Under the federation charter, each Emirate is supposed to contribute 50% of its oil-related income to help finance the national budget. The practice has been very different, and each Sheikdom still controls most of its own budget. Similar differences affect foreign policy and regional security, Ras al-Khaimah still pursues a low level border dispute with Oman, although it does so against the opposition of the other Sheiks in the UAE, and has exhibited some separatist ambitions towards creating a Qasimi state that would include Sharjah. Similarly Abu Dhabi backed Iraq solidly during the Iran-Iraq War, and strongly supported efforts to build-up the GCC, while Dubai and Sharjah tilted more towards Iran.

This helps explain why the UAE found it difficult to cooperate collectively with any of the GCC efforts to integrate southern Gulf defenses during the 1980s, although Abu Dhabi generally supported such efforts. Further, Abu Dhabi has aligned itself more closely with Saudi Arabia and the West ever since Iran used its F-4s to attack the main pumping and loading facilities in the Al Bakush off shore oil field in November, 1986. This attack seems to have come because Iraqi air strikes had damaged the Iranian facilities that drew oil from the same field being operated by Abu Dhabi, and Abu Dhabi kept producing from the common reservoir in spite of Iranian protests.

This Iranian attack led Abu Dhabi to turn to the U.S. and the West for aid in improving its air and naval defenses.²³³ Iran responded by using its Revolutionary Guards to plant mines in the waters near the UAE's off shore fields, and bombed one of Sharjah's off shore oil facilities in 1988. This led to increasing cooperation between the UAE and U.S. during Operation Earnest Will in 1987 and 1988, and laid the ground work for even closer cooperation when the Gulf War began .

²³³ For more details, see the author's [The Gulf and the West](#) and [Lessons of Modern War, Volume II](#).

The UAE strongly backed the UN Coalition during the Gulf War. It provided troops to the Coalition, but its most important contribution was to provide extensive financial aid, basing rights, and aid in kind. This support for the UN reflected not only the fact that all the sheikdoms saw Iraq as a common threat, it reflected the fact that Saddam Hussein vigorously denounced UAE oil production policy in exactly the same way he denounced that of Kuwait during the months before Iraq's August, 1990 invasion.

UAE Military Spending and Arms Imports

The UAE is relatively wealthy, although this wealth is heavily dependent on oil prices, the UAE tends to spend all it earns, and has often experienced a budget deficit.²³⁴ The UAE has collectively spent a great deal on defense. The UAE increased its annual military expenditures from around \$822 million in 1978, to \$1,900 to \$2,100 million during 1981 through 1985. Defense spending dropped to around \$1.6 billion during 1986-1990, but climbed in 1991 as the UAE reacted to Iraq's invasion of Kuwait, and probably exceeded \$2 billion.²³⁵

Individual annual defense expenditures totaled \$1,197 million in 1979, \$1,724 million in 1980, 1,980 million in 1982, \$1,973 million in 1983, \$1,932 million in 1984, \$1901 million in 1985, \$1,580 million in 1986, \$1,590 million in 1987, \$1,587 million in 1988, and \$1,471 million in 1989.²³⁶ The UAE has spent about 6 to 7 percent of its GDP on defense during the last decade, and 36% to 51% of its central government expenditures.²³⁷

Like Saudi Arabia and Kuwait, the UAE faces significant near term funding problems because of the costs of the Gulf War. It had a budget deficit of \$311 million in 1991, and this will increase to \$1.14 billion in 1992, as the UAE pays off the costs of its support for the UN Coalition. This has forced it to trim a number of civil expenses, and limit military spending as well.²³⁸

The UAE's arms imports were relatively moderate through 1990, ranging from \$60 million to \$270 million annually through 1990. The UAE did, however, start a major arms import program shortly before the Gulf War: It imported about \$850 million worth of arms during 1989, and \$850 million more during 1990 and early 1991, and its major supplier

²³⁴ Wall Street Journal, December 22, 1987, p. 16.

²³⁵ Estimates for 1978-1988 are based on ACDA data. Estimates for 1989-1991 are based on IISS and CIA data.

²³⁶ Arms Control and Disarmament Agency, World Military Expenditures, 1990, Washington, GPO, 1992, Table I.

²³⁷ Arms Control and Disarmament Agency, World Military Expenditures, 1990, Washington, GPO, 1992, Table I.

²³⁸ The Middle East, February, 1992, pp. 19-20.

was France. ACDA estimates that the UAE imported \$150 million worth of arms in 1979, \$170 million in 1980, \$240 million in 1981, \$50 million in 1982, \$40 million in 1983, \$190 million in 1984, \$190 million in 1985, \$150 million in 1986, \$230 million in 1987, \$60 million in 1988, and \$850 million worth in 1989.²³⁹

The UAE's total arms imports during 1979-1983 totaled \$620 million, with most of its arms coming from France and other European states. Roughly \$20 million came from the U.S., \$350 million came from France, \$90 million from the U.K., \$110 million from the FRG, \$30 million from Italy, and \$20 million from other states.²⁴⁰ Its total arms imports during 1984-1988 totaled \$620 million, and showed a shift towards U.S. weapons. Some \$20 million came from the USSR, \$350 million came from the U.S., \$180 million from the U.K., \$70 million from the FRG, and \$30 million from other states.²⁴¹

ACDA changed its way of reporting arms sales by source in 1992. According to this reporting, the UAE imported a total of \$1,495 million worth of arms during 1985-1989, worth \$20 million from the Soviet Union, \$340 million from the U.S., \$725 million from France, \$40 million from the UK, \$280 million from other European countries, \$80 million from other East Asian states, and \$10 million from Latin America.²⁴²

UAE Military Manpower

Driven largely by oil income and an influx of foreign workers, the population of the UAE has risen from 150,000 in 1972, and 750,000 in 1982, to 2.4 million in 1991. It is now heavily concentrated in the major port cities of each sheikdom, and is now only about 19% native Emirian and 23% other Arab. Less than 20% of the population -- virtually all of it Arab Muslim -- holds citizenship. South Asians (largely workers and shopkeepers) make up 50% of the population and outnumber the total Arab population. The remaining 8% is largely Western and East Asian. About 80% of the population is nominally Sunni Muslim (a government figure which ignores the actual faith of many South Asians), and about 16% is Shi'ite. About 516,000 males between 15 and 49 are estimated to be fit for military service, but less than 20% of them are citizens.²⁴³

The UAE has slowly expanded its total military forces from 25,000 men in the early 1980s to 44,000 thousand in 1985, and its manpower has remained relatively constant since

²³⁹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II.

²⁴⁰ Arms Control and Disarmament Agency, World Military Expenditures, 1986, Washington, GPO, 1987.

²⁴¹ Arms Control and Disarmament Agency, World Military Expenditures, 1986, Washington, GPO, 1987.

²⁴² ACDA, World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

²⁴³ CIA, World Factbook, 1991, pp. 320-321.

that date. The UAE is the only southern Gulf army to have trained women for combat. During the build-up following Iraq's invasion of Kuwait, Sheik Zayed sent 74 women for training by U.S. Army female personnel in the U.S. This training, however, was largely a token gesture.²⁴⁴

The UAE has found it very difficult to expand its forces. It has been able to training an increasingly number of good native officers, and its far less dependent on Pakistani and other expatriate officers and men than it was in the past. Nevertheless, its current military forces are more than half expatriate -- including many Omanis. Its problems in force expansion include continuing feuds between its sheikdoms, limited total manpower, and dependence on foreign laborers.

This limited rate of increase reflects the fact that the UAE has a limited manpower base to draw upon. Its total population is around 2.4 million, with a growth rate of about 5.7%. It is only 19% Emiran, however, with 23% other Arab, 50% South Asian, and 8% others -- including Westerners and East Asian. Less than 20% of the population are citizens. The population is largely Islamic, with about 80% Sunni and 16% Shi'ite. The other 4% are largely Christian and Hindu.²⁴⁵

The total male manpower pool is about 94,000, counting the population from 15-49. The CIA estimates that 516,000 males are fit for military service. So much of this population is foreign, however, that the CIA cannot estimate how many males reach military age each year. The IISS estimates that there are 69,700 males between the ages of 13 and 17, 55,600 between the ages of 18 and 22, and 158,400 between the ages of 125,320. There is no way to test the accuracy of these estimates, but the native manpower available for military service is clearly severely limited.

The UAE's Military Forces

Much of the UAE's defense and arms effort has been wasted in the past, or spent on internal rivalry.²⁴⁶ The individual sheikdoms that made up the UAE are deeply divided, and many of its 43,000 man military forces remain under the de facto command of individual Sheiks. While arms purchases were supposed to be centralized after 1976, this simply was not the case. Dubai, for example, bought Italian-made tanks to have a supply of arms that Abu Dhabi could not influence. Even the command structure is uncertain. As a

²⁴⁴ Wall Street Journal, August 8, 1991, p. A-1.

²⁴⁵ CIA, World Factbook, 1991, pp. 320-321.

²⁴⁶ The force strength data in this section are adapted from interviews, and various editions of the IISS, Military Balance, and the JCSS, Middle East Military Balance.

result of the power struggles between Abu Dhabi and Dubai, the responsibility for command, personnel, logistics, support matters, and procurement seems to vary according to the nature of internal politics and external crises. Abu Dhabi's forces are the only elements of the UAE armed forces that regularly participate in GCC exercises, although Dubai has sometimes contributed to such exercises.

The UAE has talked about conscription, but has not implemented it, and lacks the population and political consensus to do so. As a result, the UAE is still heavily dependent on foreign manpower from Jordan, Oman, the Sudan and Pakistan at every level from mid-level officer down. There are also some British and Pakistani contract pilots, and contract British officers. The UAE's forces have suffered in recent years, however, from friction between native UAE and Omani personnel. The UAE also seems to have dismissed some of its Jordanian and Sudanese personnel as a result of the Gulf War, although the number of Jordanians was reduced even before Jordan aligned itself with Iraq in 1990. As a result, the UAE may now have more manpower problems than it did in 1989.

The UAE Army

The UAE Army has a nominal force strength of 40,000 men, including large numbers of Jordanian and Pakistanis. Its order of battle includes one armored brigade, one mechanized brigade, and three infantry brigades --including a royal guard brigade. In practice, these units are organized into formations controlled by Abu Dhabi, Dubai, and Sharjah -- often without any standardization of equipment, training, or personnel career structures. Abu Dhabi has the Western Command with 22,000 men, one armored brigade, one mechanized brigade and the royal guard brigade. Dubai has the Central Military Region with 5,000 men and one brigade. Ras al-Khaimah has the Northern Military District with 1,700 men, and one brigade. Sharjah has its own regimental or brigade sized unit. Each military district is under the command of a son of the ruling sheik of the individual sheikdom involved, and the smaller Sheikdoms have their independent guard forces and commands. Abu Dhabi contributes elements of its mechanize brigade to the Peninsular Defense Force at King Khalid Military City in Saudi Arabia.

This structure has severely inhibited the training and organization of UAE forces. The UAE has some good units at the battalion level, but cannot operate defensively or offensively as a coherent force -- particularly at any distance from its normal peacetime bases and casernes. Armored operations, air defense operations, maneuver warfare, combined arms, and combined operations are all critical weaknesses, and the UAE could not operate effectively at the brigade level. This situation is, however, gradually

improving, largely as the result of declining rivalry between the sheikdoms and an understanding that more professionalism is vital if the army is to have any real value as either a deterrent or operational force.

Equipment is a problem for a number of reasons, primarily standardization, interoperability, and obsolescence. The UAE's heavy armor now consists of 131 main battle tanks, divided into 95 AMX-30 and 36 OF-40 Lions.²⁴⁷ The AMX-30s are in two battalions in Abu Dhabi, and sources disagree as to whether there are 64 AMX-30s plus four recovery vehicles, or all 95 AMX-30s plus six recovery vehicles, in active service. In any case, the AMX-30s are lightly armored, lack modern firepower systems, and are obsolete. For several years, Abu Dhabi has been examining the option of joining Saudi Arabia in accepting a West German proposal to up-engine the AMX-30, and install a new fire control, and make other improvements.

The OF-40s are Italian versions of the German Leopard, and are virtually part of a different force. Dubai took delivery on the first 18 OTO Melara OF-40s in 1981, and then on 18 more plus three armored recovery vehicles. It has converted all of its OF-40s to the improved Mark 2 version, but its tank force has never had more than minimal effectiveness.²⁴⁸

The UAE needs new tanks if it is to develop the kind of strength that could deal with a threat from either Iraq or Iran. Abu Dhabi has been examining possible replacements in combination with Saudi Arabia since the late 1980s. Candidates include the AMX-40, EE-T1 with either a 105 mm or 120 mm gun, the Challenger, the M-1A1/2, and possibly the T-72. The UAE came close to signing an order for 337 M-1A1 tanks, and 160-164 Bradley M-2 fighting vehicles, and 800-900 high mobility multi-purpose wheeled vehicles in 1991, but delayed the order pending further trials of the M-1, Challenger, and LeClerc in Kuwait. It delayed the order both because of financing problems, and because of uncertainty regarding Congressional approval of the sale. It is now seriously considering a buy of 360 Leclerc tanks.²⁴⁹

The UAE's other armor includes about 770 other fighting vehicles. These include 86 Scorpion light tanks, 90 AML-90 and VBC-40s in the armored reconnaissance role, 20 AMX-10P infantry fighting vehicles. The UAE also has a wide range of APCs, including 96 Engessa EE-11 Urutus (some with TOW), 200 M-3 AML/VTTs, 90 VCRs, and

²⁴⁷ The Italian-made OF-40s are the only tanks operational in the world in this configuration.

²⁴⁸ France demonstrated the AMX-40 in trials in both Qatar and the UAE. *Jane's Defense Weekly*, June 6, 1987, p. 1092.

²⁴⁹ *Defense News*, April 22, 1991, p. 1; September 16, 1991, p. 1; December 9, 1991, p. 1.

20VAB/ VBCs. The UAE also has 60 armored recovery vehicles, including EE-9s and AMX-30s. It has over 100 armored cars --many in storage: These include AML-60s, 20 Ferrets, 70 Saladins, Saracens, and Shoreland Mark 2s.

This is far too wide a range of types and seller countries to allow easy standardization of maintenance and training, and some of these types are obsolete. To add to this confusion, various sources reported during 1991 and 1992 that the UAE had 160-164 Bradley M-2 fighting vehicles, 100 M-113A2s, Egyptian Fahd and Vickers Valkyr APCs, and 800-900 M-998 Hummer light reconnaissance vehicles on order. There is no way to accurately evaluate the accuracy of such rumors, but it seems likely that there were no M-113A2s on order, and that the Brazilian sale never went beyond sending armored vehicles to the UAE for evaluation purposes.

Further, in May 1992, the UAE took a step that indicated it would follow a very different course. It took delivery on 50 Soviet BMP-2s and ordered 400 more. This gave it both the ability to standardize on a new combat vehicle, and an excellent bargain. According to some reports, the UAE only paid \$23,000 per vehicle which compares with nearly a \$1 million for the Bradley. This raise some question as to whether the UAE would also buy Soviet tanks, but the chief of the UAE general staff, General Sheik Mohammed bin Zayed, indicated that the UAE was still interested in Western tanks, and had recently requested price and availability information on the purchase of 390 U.S. M-1A2 tanks.²⁵⁰

Although the UAE has improved its artillery strength in recent years, its forces still have serious limitations. The UAE army has 20 155 mm AMX Mark F-3 self-propelled howitzers, 24 M-46 130mm towed guns, 72 105 mm towed howitzers, 36 M-56 105 mm pack howitzers, 20-24 120 mm mortars and 80 81mm mortars. The UAE has also acquired 18 LAU-97 70 mm and 24-40 FIROS-25 122mm multiple rocket launchers.

The UAE can use this mix of artillery in set piece firing exercises, at least by Gulf state standards, but even then it has problems in target acquisition and maneuver. The UAE needs to replace most of its towed weapons with self-propelled weapons to conduct armored and combined arms operations. It also lacks more artillery sensors and fire control aids.

The UAE has an adequate number of anti-tank guided weapons launchers, including 15 BGM-71A Improved TOW launchers (Some on EE-11s), 35 HOT launchers (some on armored vehicles), 65-70 Milans on EE-11s and 120 man portable Milan launchers, and

²⁵⁰ These reports are dubious. Brazilian firms often leak false orders while trying to win new business. The EDT-FILA is a three radar system with a scanning area of 2--25 kilometers. Defense News, April 22, 1991, p. 1; December 9, 1991, p. A-1, May 25, 1991, p. 1.

an unknown number of obsolete Vigilant launchers. Its other anti-tank weapons include 106 mm recoilless rifles, and 84 mm Carl Gustav M-2 recoilless rifles.

The UAE's short range air defenses include 9 Crotale launchers, 12 Rapier fire units, 18 Blowpipe fire units, and 12 RBS-70 fire units. There are 48 M-3 VDA self-propelled twin 30 mm guns, and 12 GCF-BM2 self-propelled twin 20 mm guns, and a mix of roughly 100 14.5mm, 20mm, 30mm., and 35mm towed guns. The missiles and self-propelled guns are all adequate weapons systems, and the UAE has done relatively well in operating the Crotale. Nevertheless, the UAE has too many types of anti-tank and light air defense weapons, too few of any given system, and poor overall training.

In broad terms, the portion of the Army under the command of Abu Dhabi and Dubai has steadily improved over time. It is, however, under trained in every aspect of maneuver, combined arms, and combined operations warfare. There is no effective unit of command or combat training above the brigade level. Logistics, maintenance, service support, and combat support vary by sheikdom. While Abu Dhabi's forces are superior to the rest, all of the UAE's forces are organized to be heavily dependent on operating near their peacetime casernes and facilities.

The UAE Air Force

Like Saudi Arabia, the UAE's air force is its most prestigious service. It now has 2,500 men in its air force, including the air defense forces and police air wing. The ground based air defense forces were shifted from army to air force command in 1988. Once again, Dubai has a separate force element, which includes about 700 men of this total. This is a very low overall manning level for an air force with 100 combat aircraft, 32 transport aircraft, and 19 armed helicopters, but overall proficiency levels are low -- particularly in conducting realistic air strike and close air support missions. The UAE is heavily dependent on foreign pilots and technical support for all operations.

The UAE now has 28 Mirage 2000s and 14 Mirage IIIEADs in fighter-ground attack roles, and 15 Hawk MK-63s in attack/training missions. It has one squadron of 10 Mirage 5 ADs in air defense missions. The Hawk is a relatively simple aircraft to operate and maintain, and British experts indicate that the UAE is able to keep it at reasonable levels of effectiveness. In contrast, they indicate the Mirage equipped forces have relatively low operational availability and limited combat training. They have evidently been overhauled and modified by Pakistan, but the Mirage IIIEADs are difficult to maintain and may present continuing operational problems. The UAE seems to have ordered additional Mirage 2000s after the Gulf War.

The UAE Air Force is having trouble absorbing its new Mirage 2000s. This, however, is only partly the fault of the UAE. Abu Dhabi refused to take delivery on the first 18 of the 36 Mirage 2000s for its air defense forces in early 1987 because they were not equipped to a special standard as specified. The UAE's dispute with France over the aircraft began in March, 1986. In spite of an agreement by Dassault-Breugnot to modify the aircraft, the Mirage 2000s Dassault proposed to deliver did not have the quality of avionics that the UAE expected, could not fire special laser-guided ordnance being developed by ISC-Ferranti, could not fire the same U.S. ordnance as other Gulf aircraft, and did not have fully compatible communications, IFF, and data links.

Dassault sought to deliver the aircraft first, and then modify them. It had some justification in making this request because much of the problem with ISC-Ferranti may have been the fault of that contractor.²⁵¹ The UAE finally agreed to accept the aircraft in November, 1987, but only if Dassault later completed the necessary changes and paid penalties. This agreement was only reached after the UAE foreign minister visited Paris and threatened the French prime minister and minister of foreign affairs with excluding Dassault from the UAE market.²⁵² According to some sources, this experience, and the success of the Saudi and U.S. F-15s during the Gulf War, has led the UAE to consider ordering F-15s from the U.S.

There are three Mirage 5RAD in the reconnaissance role, and some sources indicate there are 8 more Mirage 2000 RADs. Four CASA C-212s are employed in an electronic warfare role, but are of uncertain effectiveness. The UAE has actively investigated ordering C-130s equipped for electronic warfare, E-2C Hawkeye for the AWACS and maritime surveillance role, and two BN-Defender AEW aircraft. Its advanced air ordnance includes R-550 Magique air-to-air missiles, and AS-11, AS-12, and AM-39 Exocet air-to-ground missiles. It has some Beech MQM-107A RPVs, which it uses as target drones.

There are 7 Hawk Mark 61s, 2 MB-339s, 2 Mirage IIIs, and 8 Mirage 2000s in training units that can be used in light combat missions. Twelve more Hawks are on order.²⁵³ There are also 6-8 MB-326K and 5 MB-339A light attack aircraft operating in the COIN and training role, and 21 PC-7 trainers. Major weaponry includes the R-550 Magic AAM and HOT. AM-39 Exocet, AS-15TT, AS-12, and AS-11 ASMs.

²⁵¹ Financial Times, December 21, 1991, p. 1; Washington Times, December 25, 1989, p. A-2.

²⁵² Defense News, January 5, 1987, p. 19; Jane's Defense Weekly, October 17, 1987, December 5, 1987, p. 1302..

²⁵³ According to some reports, 3 Alphajet attack aircraft, and 10 aging Hunter FGA-76/T-77 are in storage.

The UAE has 12 SA-342K Gazelle attack helicopters with HOT ATGMS, and 7 SA-316/319 Alouette III with AS-11/12 air-to-surface missiles. Two AS-332Ks are armed for the anti-ship role. The UAE has also order 20 AH-63 Apache attack helicopters. These aircraft will present roughly the same advantages to the UAE that they do to Bahrain. They furnish the kind of long range strike system that gives the UAE the ability to rapidly defend both all its coast line and territory, and to conduct all-weather and night armed reconnaissance to deal with any amphibious landing. They also can be used to reinforce Saudi Arabia, Bahrain, or Kuwait.²⁵⁴

Overall pilot training is good, but the UAE is only slowly evolving away from an air force with limited training in day combat, and with little central direction and overall organization. It is dependent on foreign technical personnel for the operation of virtually all its aircraft, and Saudi and British pilots indicate that it does very little realistic air-to-air combat training, would have serious problems in low altitude air defense and attack missions, has no real experience in combined operations, and needs to improve its munitions and ground-based intercept training.

Reports differ as to the UAE Air Force's transport force. It may include 2 L-100-30, 4 C-130Hs, 1 HS-125, 1 Falcon 20, 5 BN-2 Islanders, 1 G-222, 5 DHC-5Ds, and 2 Cessna 182s. Its transport helicopters seem to include 2 AB-205/Bell 205, 6 Bell 206A/L, 4 Bell 214, 8 AS-332, 1 AS-350, and 11 SA-330 Pumas. There are 3 Bo-105 helicopters in the SAR role. Some reports indicate that the UAE has 30 A-129 Mangustas and Lynx helicopters on order.

The air force's main air bases at Abu Dhabi and Jebel Ali (Dubai) are sheltered and have light anti-aircraft defenses. It also has military fields at Batin in Abu Dhabi, Dubai, Fujairah, Ras al-Khaimah, and Sharjah. Abu Dhabi is creating major modern air base at Suwaihan.

The UAE Air Force merged with the air defense force in January, 1988. This merger occurred because of growing coordination problems between the fighter force and land based air defenses.²⁵⁵ The decision placed both commands under the former chief of the Air Force, Colonel Sheik Mohammed bin Zayed al Nahyan, and the head of the air defense force, became deputy commander. He described the merger as leading to, "faster decision

²⁵⁴ Jane's Defense Weekly, June 15, 1991, p. 1001.

²⁵⁵ Jane's Defense Weekly, February 20, 1988, p. 301.

making and closer cooperation...better performance in the use of weapons, and also flexibility in relaying orders from headquarters and carrying them out." ²⁵⁶

The UAE is making progress along these lines. It has deployed an air defense brigade with three battalions. These are armed with the 12 Rapier, and 9 Crotale fire units, 12 RBS-70 light surface to air missiles listed earlier, SA-14s, light unguided anti-aircraft guns, and Skyguard radar guided twin Oerlikon 35 mm anti-aircraft guns. The UAE has also formed five MIM-23B Improved Hawk batteries with 42 launchers (342 missiles).²⁵⁷ It will take at least three years, however, to make these ground based air defense units as fully manned and effective forces.

The UAE Air Force has Marconi, AN/TSQ-73, and AN-TPS-70 warning radars. It is supposed to acquire a greatly improved automated air defense command and control system along with its improved Hawks, but its overall command and control, and air control and warning capabilities are questionable. Some of the systems integration was evidently supposed to be carried out by ISC and Ferranti as part of a project called GMX or Al-Hakim. Ferranti's performance has evidently been questionable, and part of the contract may have been fraudulent.²⁵⁸ It still seems to need effective battle management and warning capability, effective secure voice and data links to the Saudi Air Force, and a compatible IFF system. Like the other small Gulf states, it would also benefit greatly from full integration into the Saudi air defense system.

The UAE Navy

The UAE's small 1,800 man navy is largely a coastal defense force operated by Abu Dhabi. It is heavily dependent on foreign personnel, and has poor to mediocre training, operating, and maintenance standards. It is not capable of independent operations except against another small southern Gulf state.

The UAE's major combat ships include two 630-ton German Type 62 Lurssen corvettes, each with 2 twin MM-40 Exocet launchers, Crotale anti-air missiles, 1 76mm gun, and 1 Alouette helicopter. There are two recently delivered 260-ton Lurssen 45 meter fast attack craft with 4 Exocet and 1 Mistral launcher each and 1 76mm gun, and 6 Lurssen TNC-45 guided missile patrol boats, each with two twin MM-40 Exocet launchers, 1 76mm gun, and 2 twin Breda 40mm guns. There are also 6 Vosper Thornycroft 33.5

²⁵⁶ The deputy commander was not named due to UAE security policies. *Jane's Defense Weekly*, Feb 20, 1988, p. 301

²⁵⁷ The U.S. temporarily delayed the sale of a \$170 million upgrade package for the IHawks in June, 1987, because of the coup attempt in Sharjah.

²⁵⁸ *Financial Times*, December 21, 1991, p. 1.

meter patrol boats with twin 30mm guns. Abu Dhabi has ordered two Lurssen 62 meter patrol boats with Exocet, 76 mm guns, and Goalkeeper close-in defense systems. If all these ships can be properly manned, the UAE will acquire a significant coastal defense capability.

The rest of the navy consists of three Keith Nelson 17 meter patrol boats, two Cheverton tenders, 4 landing craft, and 1 tug. A small coast guard, which is part of the Ministry of Interior, operates 39 coastal patrol boats, and two Crestitalia 30-meter diver support vessels.

The navy conducts little realistic exercise training, although its proficiency has improved significantly since the late 1980s. It also remains highly dependent on foreign personnel and advisors, and is scattered in a number of duplicative bases at Ajman, Mina Zayd and Dalma (Abu Dhabi); Mina Rashid and Mina Jebel Ali (Dubai); Mina Sakr (Ras al-Khaimah); Fujairah; and Mina Khalid and Mina Khor Fakkan (Sharjah). A naval facility is under construction at al-Qaffay Island, but reports that the UAE would create a major naval base at Taweela have not been confirmed.

Paramilitary and Security Forces

Like the other southern Gulf States, the UAE has large paramilitary police forces, and security and intelligence units organized along British lines. In Abu Dhabi's cases, these are controlled by the Ministry of Interior, but each Sheikdom seems to have forces of its own. Abu Dhabi and Dubai seem to have competing intelligence and security units. There is also a small coast guard and border security force. None of these forces seem to be particularly repressive, although the UAE obviously exerts careful control over foreign laborers, maintains surveillance on its armed forces and particularly foreign soldiers, and must be concerned with Iranian and Iraqi infiltration.

Strategic Interests and Arms Control

Regardless of the internal tensions in the UAE, there is no reason to assume that it will not remain a moderate state and friendly to the West. The UAE clearly needs to improve many of its forces for defensive purposes and if it is to play any role in collective security in the southern Gulf. Creating an effective air defense, and maritime defense and surveillance system, in the UAE is also critical for regional defense and if the West ever has to project power in the fact of a hostile Iran or rearmed Iraq. It would also contribute a great deal to regional security if the UAE's next generation of arms and munitions was standardized or interoperable with the equipment in USCENTCOM forces.

The main issue affecting future arms sales to the UAE is whether they can help lead to the creation of an effective deterrent, suitable defensive capabilities, and improved capacity to accept friendly power projection forces, or will become bogged down in the rivalry between individual sheikdoms. There is no simple answer to this question, and the best answer might well be for the UAE to develop a cohesive force improvement plan that would resolve this question. There does seem to be significantly less political instability in the UAE than there was in the mid-1980s, although such rivalry certainly continues.

The UAE's most progressive leader--Sheik Zayed bin Sultan al Nuhayyan of Abu Dhabi--still has no clear successor, although Khalifa, the Crown Prince and Deputy Supreme Commander of the Armed Forces, seems to be emerging as a possible candidate. The continued rivalry between Abu Dhabi and Dubai is particularly disturbing.

Dubai and Sharjah might also provide Iran with tacit support at some point in the future if a low level crisis arose between Iran and some other southern Gulf state, although Iran's seizure of all of Abu Musa from the UAE during April to October, 1992, seems to have made the more pro-Iranian members of the UAE a great deal more cautious about Iran's long term intentions, and the UAE showed considerable unity in taking a hard line towards Iran, in negotiating GCC and Arab League protests of Iran's decision to expel the UAE from Abu Musa, and in demanding that Iran also return the Tonb islands.

Oman ²⁵⁹

| <u>Year</u> | <u>Manpower</u> (1,000s) | <u>Tanks</u> | <u>Aircraft</u> | <u>Defense Spending</u> \$ Millions | <u>Arms Imports</u> \$ Millions | <u>Arms Exports</u> \$ Millions |
|-------------|-----------------------------|--------------|-----------------|--|------------------------------------|------------------------------------|
| 1967 | 3 | - | - | - | - | - |
| 1973 | 8 | - | 12 | 287 | 13 | - |
| 1982 | 15 | 18 | 37 | 1,512 | 130 | - |
| 1988 | 27 | 39 | 63 | 1,371 | 30 | - |
| 1991 | 30 | 80 | 60 | 1,390 | - | - |

Oman is one of the larger southern Gulf states, with a total territory of 212,460 square kilometers, slightly smaller than the state of Kansas. Like most Gulf states, Oman has disputed borders. It still has not established an agreed demarcation of its 288 kilometer

²⁵⁹ The military manpower, force strength, and equipment estimates in this section are made by the author using a wide range of sources, including computerized data bases, interviews, and press clipping services. Most are impossible to reference in ways of use to the reader. The force strength statistics are generally taken from interviews, and from the sources reference for each paragraph. They also draw heavily on his The Gulf and the Search for Strategic Stability (Boulder, Westview, 1984) and The Gulf and the West (Boulder, Westview, 1988).

Extensive use has also been made of the annual editions of the International Institute for Strategic Studies Military Balance (IISS, London), in this case, the 1991-1992 edition, and of the Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv), especially the 1989-1990 edition and working materials from the coming edition. Material has also been drawn from computer print outs from NEXIS, the United States Naval Institute data base, and from the DMS/FI Market Intelligence Reports data base. Other sources include the Military Technology "World Defense Almanac for 1991-1992," published in early 1992; Foreign Affairs Division, "Middle East Arms Control and Related Issues," Washington, Congressional Research Service, 91-384F, May 1, 1991; and Middle East Economic Digest, "MEED Special Report: Defense," Volume 35, December 13, 1991.

Weapons data are taken from many sources, including computerized material available in NEXIS, and various editions of Jane's Fighting Ships (Jane's Publishing); Jane's Naval Weapons Systems (Jane's Publishing); Jane's Armor and Artillery (Jane's Publishing); Jane's Infantry Weapons (Jane's Publishing); Jane's Military Vehicles and Logistics (Jane's Publishing); Jane's Land-Base Air Defense (Jane's Publishing); Jane's All the World's Aircraft (Jane's Publishing); Jane's Battlefield Surveillance Systems, (Jane's Publishing); Jane's Radar and Electronic Warfare Systems (Jane's Publishing); Jane's C³I Systems (Jane's Publishing); Jane's Air-Launched Weapons Systems (Jane's Publishing); Jane's Defense Appointments & Procurement Handbook (Middle East Edition) (Jane's Publishing); Tanks of the World (Bernard and Grafe); Weyer's Warships (Bernard and Grafe); and Warplanes of the World (Bernard and Grafe).

Other military background, effectiveness, strength, organizational, and history data are taken from Major-General Edward Fursdon, "Oman's 20th National Day Anniversary," Navy International, January, 1991, pp. 20-21; "Oman: A Financial Times Survey," Financial Times, November 21, 1991; Anthony H. Cordesman, The Gulf and the Search for Strategic Stability, Boulder, Westview, 1984, The Gulf and the West, Boulder, Westview, 1988, and Weapons of Mass Destruction in the Middle East, London, Brassey's/RUSI, 1991; Anthony H. Cordesman and Abraham Wagner, The Lessons of Modern War, Volume II, Boulder, Westview, 1989; the relevant country or war sections of Herbert K. Tillema, International Conflict Since 1945, Boulder, Westview, 1991; Department of Defense and Department of State, Congressional Presentation for Security Assistance Programs, Fiscal Year 1993, Washington, Department of State, 1992; various annual editions of John Laffin's The World in Conflict or War Annual, London, Brassey's, and John Keegan, World Armies, London, Macmillan, 1983.

border area with Yemen -- an area which may have oil -- although it is actively negotiating a settlement and may complete one before the end of 1992. There is still some residual tension with Saudi Arabia over their 676 kilometer border, and ownership of Western Oman, although both countries reached a demarcation agreement on May 21, 1992. Oman's 410 kilometer border with the UAE is not demarcated. Oman has a 1,700 kilometer coastline, and faces threats to its position as the southern gate to the Gulf from Iran. The Musandam Peninsula at the entrance to the Gulf is a separate territorial enclave separated from the rest of Oman by the UAE. Roughly 17% of the world's oil production transited through the entrance to the Gulf in 1990.

Oman is a small oil power. It had produced of total of about 3.3 billion barrels of oil by the end of 1990, and had a moderate reserve to production ratio of 18/1.²⁶⁰ As of September 1, 1992, Oman had estimated proved oil reserves of up to 4.55 billion barrels, with probable additional reserves of 2 billion barrels, and gas reserves of 17 trillion cubic feet. These estimates does not include up to 30 billion barrels of heavy crude, which may eventually be producible. Oman had about 0.5% of the world's total oil reserves, and produced at a rate of about 0.75 million barrels per day during 1990 and 1991, and planned to increase production to 750,000 barrels per day in 1992. At this rate of production, it will have 20-25 years of reserves.²⁶¹ Oil provided 49% of Oman's GDP in 1990, and 80 percent of its government revenues, and its only other major export is fish. All of Oman's oil is blended and is exported through Muscat. It goes largely to Asian markets. Oman has one 80,000 barrel per day refinery.²⁶²

Although Oman receives rain from the Indian Ocean monsoons, 70% of its annual rainfall of 100mm evaporates without affecting the soil. Oman has only about 0.43 cubic kilometers of internal renewable water resources, which is very low, and which amounts to about 561 cubic meters per person, less than one-fifth the total for a citizen of the U.S. Its agriculture is very marginal, and Oman has long drawn down on its fossil water by over pumping its aquifers. Oman has tried to solve this water with retention dams that will force the water into the soil, and by repairing the 1,000 year old Persian system of underground aqueducts that once provided water in Oman's interior. Water, however, is

²⁶⁰ *Oil and Gas Journal*, September 23, 1991, p. 62.

²⁶¹ *OJJ Special, Oil and Gas Journal*, December 30, 1991, pp. 43-49; Other estimates indicate 4.3 billion barrels of proven reserves and 2 billion barrels of probable reserves. See Joseph P. Riva, Jr. of the Congressional Research Service, writing in the *Oil and Gas Journal*, September 23, 1991, p. 62. These estimates have gotten increasingly more political in recent years as each major producer in the Gulf has tried to exaggerates its reserves and relative importance.

²⁶² Mark Nicholson, "A Tough Hurdle," *Oman: A Financial Times Survey*, November 20, 1991, pp. I-IV.

likely to be a growing problem and Oman is too poor to rely on increase food imports or provide alternative jobs.²⁶³

The Development of Oman's Military Forces

Oman was once one of the great sea powers of the Arab world, and ruled an empire that included an enclave in India, Zanzibar, and Mombassa in East Africa. This empire broke up in 1856, however, and Oman's trade declined to point where it became little more than a backward British protectorate. This sharply undercut the powers of the Sultans, and they gradually lost control over both part of Western Oman and the Dhofar region in the south.

Much of the territory of Oman came under tribal control from 1920 to 1957. This loss of control led to sporadic rebellions, the Burami Oasis dispute discussed in the analysis of the UAE, a Saudi effort to seize control of Western Oman in the 1950s, and a much more serious Marxist attempt to seize control of the southern province of Dhofar.

The most important tribal struggle shaping modern Oman was the "Imamate Opposition" which began in the last century, and involved differences over both religion and the Sultan's political authority. These tensions reached the level of open rebellion when Ghalib bin Ali became Imam of Oman's Ibadhi sect in 1954.²⁶⁴ Bin Ali proved to be extremely ambitious, and rejected the Sultan's attempt to exert control over Western Oman. He instead turned to the Arab League and Saudi Arabia, and applied for recognition by the Arab League of a separate country. Saudi Arabia back him with money and arms and seems to have sought to use the rebellion to annex both the Burami Oasis and part of Western Oman.

The Omanis, helped by the British, responded by sending the British-led Trucial Oman Scouts to drive the Saudis out of the Burami Oasis in November, 1955, and by deploying British troops to Nizwa and other towns and villages near Oman's border with Saudi Arabia. Ghalib bin Ali was forced to resign as Imam, but his brother Talib fled to Saudi Arabia and organized tribal forces with Saudi support. Talib invaded Oman in early 1957, and his brother again proclaimed himself Imam in June, 1957.

The British used the Tribal Oman Scouts and British troops from Aden to drive Galib bin Ali's forces into the Jebel Akhdar mountains in July, Britain then used the RAF

²⁶³ Los Angeles Times, January 28, 1992, p. C-1; Oman: A Financial Times Survey, November 20, 1991, pp. I-IV.

²⁶⁴ The Ibadhis are relatively liberal and tolerant. They make up about 75% of Oman's native population. CIA, World Factbook, 1991, pp. 236-237.

to bomb the rebels while it help to train and equip the Sultan's forces. When the Sultan's forces failed, in part due to poor leadership and the Sultan's alienation of the tribes in the area, Britain sent troops back into the area, and attacked the Imam's positions in the Jebel Akhdar in August, 1987. British troops and the RAF continued to aid the Sultan's forces until the Imam's forces finally collapsed in early 1959, in part because of payments by his forces to desert him.

The Dhofar rebellion is a different and much grimmer story. Dhofar had long been under Omani control, and had been annexed to Oman in 1879, but had a different dialect and tribal character. The Sultans made no attempt to develop it, or share any of Oman's revenues. This led to low level rebellion beginning in 1963, and the rebels increasingly drew on radicals and Marxists outside Dhofar for ideology, funds, and military support. By 1965, the Dhofar rebels controlled much of the countryside, and in June, 1965, they began to attack government strong points and installations.

The Dhofar rebellion became a major military problem in 1967, after Britain evacuated Aden. A new Marxist radical state emerged from the fighting after British withdrawal called the People's Democratic Republic of Yemen. This state quickly began to provide arms and support to the Dhofar rebels, who were initially divided into the Dhofar Liberation Front (DLF), National Democratic Front for the Liberation of the Occupied Arabian Gulf (DLF), and Popular Front for the Liberation of Oman (PFLO).

On June 11, 1970, the Dhofar rebels started a new offensive in the south and soon came to control virtually all of southern Oman except its main port city of Salalah. This led the British to aid the Sultan's son, Qabus, carry out a coup on July 23, 1970. Unlike his father, the Sandhurst trained Qabus proved to be an effective and modern leader. He granted the Dhofari a considerable degree of autonomy, and rapidly Omanized the armed forces. He offered the rebels amnesty, and a significant number of DLF and PFLO rebels joined him. The remaining rebels combined to form the Popular Front for the Liberation of Oman (PFLOAG) in February, 1972.

With British aid, Sultan Qabus created a mix of highly effective light infantry forces, and recruited tribal militias from the Dhofar region called *firquats*. Sultan Qabus also made effective use of British advisors and troops, including elements of the SAS. He went on the counter-offensive, began to attack PFLOAG positions the PDRY with artillery and air power. He also sent Omani and SAS commando teams into the border area and Hauf to attack Dhofar rebel artillery positions and sanctuaries.

In December, 1973, the Sultan obtained further aid from the Shah of Iran, who sent an entire brigade of troops to Oman in 1973. At the same time, an increasing number of

Dhofar rebels joined the Sultan as Marxist extremists came to dominate the PFLO, and alienated the people with experiments like the collectivization of children. By 1974, Oman was able to secure defensive positions called the Hornbeam line, about 50 miles from the border with the PDRY.

In 1975, the Sultan obtained further support from Jordan, and began to sweep the last areas near the border. Sources differ over the nature of Omani attacks on the PDRY. According to some sources, Iranian aircraft and Omani ships attacked the town of Hauf in the PDRY on October 17, 1975, and the PFLOAG withdrew from its last positions in Oman. According to others, the British Special Air Services (SAS) attacked Hauf on several occasions to pressure the PDRY to halt its support for the rebels. In any case, the Sultan declared the end of the rebellion December 11, 1975. By 1975, Oman had secured positions called the Damavand line about 25 miles from the border. This effectively ended the rebellion, and Jordanian troops left Oman. Iran removed most of its forces in January, 1977 -- although some Iranian troops remained in the area until 1979 -- and most British troops left in March. By this time several thousand people, including many women and children, had died in the fighting.

Sultan Qabus has not only secured the country in the years that have followed the end of the Dhofar rebellion, he has done a great deal to develop it and has created a broadly based political leadership including several ministers who were once Dhofar rebels. While Oman is a relatively poor country, but limited oil resources were discovered in 1967. It has used these resources wisely, with some of the best development planning of any Gulf state and the people now have far higher living standards than in the mid-1970s.

The Sultan has also steadily liberalized Oman, although Oman still has censorship, strict immigration controls, and active internal security forces. In 1981, the Sultan created a State Consultative Council (SCC), while was Oman's first attempt at moving towards popular rule. The SCC had 55 appointed members, and met three times a year. While it had no formal power to veto the Sultan's actions or legislative, debate was relatively free and often vigorous. In 1991, the Sultan announced that he would create a popular assembly or Majlis al Shoura. Its full powers are unclear, but it is expected to have at least some power to review legislation, include a broader representation of the population, and exclude government officials. The SCC included 11 government officials of under secretary rank who sat in the SSC in their official capacity. The Majlis will be structured to give additional representation to rural areas. Its members will be chosen by Oman's governors, rather than the Sultan and approved by the Deputy Prime Minister after the Sultan's

endorsement. The new Majlis will also be empowered to call Ministers to account and to regularly review legislation.²⁶⁵

If there is any major remaining internal security problem, it may be the succession. The Sultan has no wife and is not expected to have an heir. One possible alternative is Sayyid Fahr bin Mahmood, the Sultan's uncle and Minister of Defense. Another possible relative is Sayyid Haitham bin Tarek, the cousin of the Sultan, son of a former prime minister, and an under secretary in the foreign office. No formal steps have been taken, however, to deal with this issue.

The Dhofar rebels and internal security have not been Oman's only problem. When Zaid on Abu Dhabi reached an agreement with Saudi Arabia over the Burami Oasis dispute in 1975, Abu Dhabi mistakenly ceded territory that belonged to Oman. While Saudi Arabia returned some of this territory in 1977, it has sporadically indicated that it still claims part of Oman. In 1977, the Shah asserted joint control over the Straits of Hormuz. This arrangement effectively ended with his fall, although Iranian ships did attempt to enter Omani waters during the Iran-Iraq War.

Sheik Saqr of Ras al-Khaimah attempted to take control of part of Oman in 1977, and place drilling rigs in Omani waters. Oman used military force to take back its territory. Oman reached a border settlement with Ras al-Khaimah but only after Zaid, the most powerful ruler in the UAE, strongly backed Sultan Qabus against Sheik Saqr.²⁶⁶ Oman has also faced a military challenge from the PDRY over the control of potential oil fields in their undemarcated border area. This has not led to fighting as serious as the border clashes between Saudi Arabia and Yemen. In October 1987, however, battalion or company sized forces fought in the area, and Oman launch air strikes against PDRY forces. the President of the PDRY visited Oman to try to defuse the situation in 1988. Even so, there have been further clashes, although it is unclear these have gone beyond exchanges of fire between small patrols.

Omani Military Expenditures and Arms Imports

Omani military expenditures have fluctuated with oil prices, but Oman has consistently tried to fund a transition from a largely infantry forces to a more modern combined arms army during the last decade. Oman increased its annual military expenditures from around \$700 million in 1979, to \$1,059 million in 1980, \$1,357 million in 1981, \$1,512 million in

²⁶⁵ Oman: A Financial Times Survey, November 20, 1991, pp. I-IV.

²⁶⁶ Sheik Saqr made several attempts to take territory from his neighbors, and was anything but a popular ruler.

1982, \$1,744 million in 1983, \$1,894 million in 1984, and \$1,937 million in 1985. Problems in oil revenues, and diminishing tension in the Iran-Iraq War led it to spend \$1,731 million in 1986, \$1,518 million in 1987, \$1,350 million in 1988, and \$1,552 million in 1989.²⁶⁷ Oman spent \$1.39 billion in 1990, and \$1.44 billion in 1991.²⁶⁸ \$1,513 to \$2,111 million in 1982 through 1985. It spent \$1.56 billion on defense in 1986, \$1.51 billion on defense in 1987, and \$1.385 billion in 1988. Oman has spent over 20% of its GDP on defense in recent years, and 38% to 49% of its central government expenditures.²⁶⁹ The other GCC states pledged to provide Oman with \$1.8 billion in aid over 12 years in September, 1983, but it is unclear how much of this aid has been delivered.

Oman's recent arms imports have varied sharply by year. Its arms imports have never exceeded \$350 million per year and this peak was reached in 1983 -- when the Iran-Iraq War seemed most likely to threaten Oman in the form of Iran pressure or attacks on the Musandam Peninsula and Goat Island in the Straits of Hormuz. ACDA estimates that Oman imported \$30 million worth of arms in 1979, \$100 million in 1980, \$60 million in 1981, \$130 million in 1982, \$350 million in 1983, \$310 million in 1984, \$140 million in 1985, \$110 million in 1986, \$110 million in 1987, \$30 million in 1988, and \$60 million in 1989.²⁷⁰

While small by Gulf standards, these expenditures have presented financing problems because Oman's oil wealth and economy have not developed rapidly in recent years, and oil accounts for 40% of Oman's GDP and 80% of its government expenditures. Oman's GDP is currently around \$8.5 billion, and its per capita income is now about \$6,400, roughly 75% in real terms of what it was in the mid-1980s.²⁷¹

The bulk of Oman's arms have come from the U.K. Oman imported a total of \$565 million worth of arms during 1979-1983, with \$80 million from the U.S., \$20 million from France, \$430 million from the U.K., \$10 million from Italy, \$5 million from the PRC, and \$20 million from other countries.²⁷² Oman imported a total of \$670 million worth of arms

²⁶⁷ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table I.

²⁶⁸ IISS, Military Balance, 1990-1991 and 1991-1992 editions.

²⁶⁹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, p. 60.

²⁷⁰ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, Table II.

²⁷¹ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 102; CIA, World Factbook, 1991, pp. 341-342.

²⁷² Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers,

during 1984-1988, with \$30 million from the U.S., \$20 million from France, \$330 million from the U.K., \$280 million from the FRG, and \$10 million from other countries.²⁷³

ACDA changed its way of reporting arms sales by source in 1992. According to this reporting, the UAE imported a total of \$445 million worth of arms during 1985-1989, with \$30 million from the U.S., \$200 million from the UK, \$210 million from West Germany, and \$5 million from other European countries.²⁷⁴

Omani Military Manpower and Readiness

Oman's military manpower has slowly increased from 15,000 in the early 1980s, to 25,000 thousand in 1985, 25,500 in 1988, and 30,400 in 1992. This limited rate of increase reflects the fact that Oman has a limited manpower base to draw upon. Its total population is around 2.0 million, with a growth rate of about 3.5%. It is largely Arab, with some small Baluchii, Zanzibari Arabs, and South Asian elements. The population is largely Islamic and about 75% of the Ibadhi sect. The remainder includes Sunnis, some Shi'ites, and Hindus.²⁷⁵

The total male manpower pool is about 348,849, counting the population from 15-49. The CIA estimates that 197,870 males are fit for military service, and that 20,715 reach military age each year. The IISS estimates that there are 83,900 males between the ages of 13 and 17, 69,600 between the ages of 18 and 22, and 125,320 between the ages of 125,320. Given this manpower pool, a relatively undeveloped economy, and Oman's need to choose military manpower from groups loyal to the Sultan, it is not surprising that Oman has kept its regular military forces relatively limited.

Further, manpower is now Oman's greatest military strength. Its troops are among the best trained and motivated troops in the southern Gulf, and Oman has a good cadre of Omani officers and NCOs and excellent British advisors. The Sultan appointed an Omani officer to the post of Commander of the Army for the first time in 1984.²⁷⁶ Oman again

1985, Washington, GPO, 1985, pp. 134.

²⁷³ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1989, Washington, GPO, 1990, pp. 134.

²⁷⁴ Arms Control and Disarmament Agency (ACDA), World Military Expenditures and Arms Transfers, 1990, Washington, GPO, 1992, pp. 133-134.

²⁷⁵ CIA, World Factbook, 1991, pp. 236-237.

²⁷⁶ The army commander, Major General Naseeb Bin Haman Bin Sultan Ruwaihi, was qualified for the post. It is important to note, however, that he was appointed at the end of 1984 when General Sir Timothy Creasy was replaced as Chief of Defense Staff by Lt. General John Watts. There are rumors this replacement occurred partly because of his insistence on an exemplary jail sentence for Robin Walsh, a British MOD official accused of misappropriating \$8,700 in MOD funds. Walsh died in an Omani jail in October, 1984. This was followed by broader accusations that up to \$74 million annually was being wrongly appropriated by the Ministry of Defense, and that both British and Omani officials knew of the

strengthened the role of Omanis in top leadership positions and throughout the officer corps in 1988 and 1990.

Oman will eventually convert the rest of its officer corps to native personnel, but still has nearly 500 British officers and NCOs seconded to the Omani armed forces. It also has limited number of personnel from Jordan and Egypt, and large numbers of Pakistani Baluchis. Oman has established both specialized secondary schools to train its military intake, and a central training center near Muscat. It also trains officer and technical personnel in Britain, the FRG, France, Jordan, and Saudi Arabia.

Unlike other members of the GCC, Oman has openly conducted military exercises with outside powers, including Britain, Egypt, France, and the U.S. While Oman established relations with the USSR in late September, 1985, Oman has long provided the U.S. with critical contingency and prepositioning facilities. These include airfields and prepositioned equipment at Masirah Island, and airfield facilities at the international airport at Seeb, at Hasb, and at Thamrait in Southern Oman, plus additional storage and naval facilities at Masirah and Ghanam.²⁷⁷ The U.S. Army Corps of Engineers also upgraded the old 2,000 foot direct runway at Khasab with a 6,500 foot surface air base. These facilities played an important role during the U.S. build-up for Desert Storm.

British forces also make frequent use of Omani facilities, have an intelligence post near Muscat, and use the Omani base at Goat Island in the Straits of Hormuz and a new intelligence post at Qabal in the Musandam Peninsula for a variety of reconnaissance functions. Both U.S. and British forces made use of Omani facilities during the Western intervention in the Gulf in 1987-1988, and again during the Gulf War in 1990-1991.

The base at Goat Island and other facilities in the Musandam Peninsula are particularly important because they guard the Straits of Hormuz and are only 26 miles from Iran. More than 50 large ships, 60 percent of them tankers, passed through these waters every day during 1986 and 1987. The Musandam Peninsula is a small enclave with a population of about 12,000, and is separated from the rest of Oman by a 40 mile strip of the UAE. Oman has been assisted in developing this region since 1976 by a U.S. firm called Tetra Tech International. It has spent nearly \$5,000 per person in recent years to develop the region.

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problem. EIU Regional Review, pp. 186-187.

²⁷⁷ The U.S. has spent over \$300 million on upgrading these facilities. Washington Post, July 19, 1985, p. A-29.

²⁷⁸ There are two major radars at Goat Island. It is garrisoned by 250 Omani soldiers and marines and 10 Britons. New York Times, December 22, 1986, p. A18; Defense News, December 1, 1986, p. 6; Washington Post, March 24, 1986, p. A-13; Christian Science Monitor, October 30, 1979; Time, December

Oman has conducted some impressive public military exercises since 1985. Its March, 1985, exercise was called Codename Thunder and involved roughly 10,000 men. It was the largest and most effective exercise that any GCC state has conducted, and Oman regularly played an important role in GCC exercises ever since. Oman also exercises regularly with British forces. Refueled British RAF Tornados have flown non-stop to air bases in Oman, and Oman held a joint exercise with Britain in December, 1986, called "Swiftsword" that involved over 5,000 British service men. This exercise included a 400 man landing by British marines, air drops, and air reinforcements. Some 5,000 Omani troops acted the role of defenders, while another 2,000 played the role of an anonymous enemy that looked very much like Iran.²⁷⁹

The Omani Army

Oman's force structure is significantly different from that of most other Gulf states, and has less heavy and high technology equipment -- although the Omani Army is steadily expanding its armor and artillery strength. At the end of 1991, the Omani Army had about 20,000 highly trained regulars. Omani soldiers and army officers are respected throughout the Gulf and Omanis often form an important portion of the total military manpower of other GCC states, especially those of the UAE.

The Omani army is organized into a division with two brigade headquarters, one armored regiment with a tank squadron, one armored reconnaissance regiment with three armored car squadrons, 5 Omani and 3 Baluchi infantry regiments, an airborne regiment, one infantry reconnaissance regiment with 3 reconnaissance companies, and two independent reconnaissance companies. Its major support elements include two artillery regiments, an air defense battery, and a field engineer regiment with three squadrons.

There are several independent land force units: a royal household force with 4,000 men -- including a Royal Guard brigade of 3,000 men, a 500 man special force regiment, a 150 man royal yacht squadron with a 3,800 ton yacht, and a 250 man Royal Flight -- and the Musandam Security Force with an independent rifle company.²⁸⁰

Oman deploys some of its forces on the Saudi and UAE borders, and in the Musandam Peninsula. It keeps at least a full brigade deployed along the mountainous border area with

2, 1985, p. 58.

²⁷⁹ Richard Green, Editor, Middle East Review, 1986, London, Middle East Review Company, 1986, pp. 168-167; New York Times, December 22, 1986, p. A18; Defense News, December 1, 1986, p. 6; Jane's Defense Weekly, November 22, 1986 and December 6, 1986; Chicago Tribune, November 18, 1985, p. I-12.

²⁸⁰ IISS, Military Balance, 1991-1992, p. 116.

Yemen, however, and this is Oman's most effective force. The brigade has at least some British officers or advisors, and operates from fire bases and strong points along the border. It also has reserve ground forces and supplies in Thumrait and Salalah, and considerable helicopter support. Oman has another brigade in the north. The Royal Guard brigade guards the Sultan in Muscat. The road net and military communications system throughout Oman is surprisingly modern, and Omani infantry forces have considerable mobility.

The Omani army is still very lightly equipped. It has 33 Chieftain, 43 M-60A3, and 6 M-60A1 tanks, although it may have bought 40 more M-60A3s from surplus U.S. stocks during 1991.²⁸¹ Its other major armored vehicles include 37 Scorpion and 6 Sultan armored fighting vehicles, 4 VAB-VCI armored infantry fighting vehicles, 6 VAB/VCI armored personnel carriers, 40 Saladin armored cars, and 8 other armored vehicles. It has 8 TOW-II and 10 TOW launchers mounted on light vehicles, additional crew portable TOW launchers, and 50 Milan anti-tank guided weapons. It also has 10 106mm recoilless rifles and large numbers of 84mm Carl Gustav rocket launchers. Additional light anti-tank weapons are on order from Britain. Armored warfare training is almost solely in the mechanized infantry role, there is only token armored maneuver and tank warfare training.

The army relies on towed artillery weapons. They include 40 ROF light 105mm howitzers, 12 M-1946 and 22 Type 59-1 130mm guns, 36 D-30 122mm howitzers, 12 FH-70 155mm howitzers, and 25-30 70mm multiple rocket launchers. It also has 12 M-109A2 self-propelled artillery weapons, and 90-100 81mm and 15-20 120mm mortars. It has no sophisticated artillery targeting and fire control systems.

Oman has very few light air defense weapons. They include several 20mm unguided air defense guns (two on VABs) 4 ZU-23-2 23mm guns, and 12 Bofors L/60 40mm guns. It also has 24 Blowpipe launchers, 28 RBS-70 fire units, and SA-7 light surface-to-air missiles.

The Omani Army has proved to be effective in securing its border areas with Yemen, and is highly effective in defending rough terrain. It has good basic training, and is effective in infantry and mountain combat. It is not, however, able to conduct more than token armored or artillery operations, and is dependent on operating from nearby bases. Its regiments are also closer to battalions than actual regiments, and the army would need about 10,000 more men to fill its current order of battle out to the strength necessary to absorb substantial additional amounts of armor and artillery. Such manning is made

²⁸¹ Oman: A Financial Times Survey, November 20, 1991, pp. I-IV.

difficult by both a lack of funds and the tribal character of the manpower, which still creates problems in terms of unit to unit and officer-enlisted relations. Nevertheless, Oman may pursue a plan to expand its army by 25% by the year 2000, and to at least double its present strength in armor.

The Omani Navy

Oman's navy must defend a 2,900 kilometer coastline, including the main shipping routes through the Straits of Hormuz. Oman has, however, built its navy up from 2,000 men in the mid 1980s to 3,400 in 1992, its has a long seafaring tradition, and it has had the services of excellent British advisors and officers. Oman is slowly converting to all Omani naval forces, but the growth of the navy's size and technical sophistication has meant that this process has taken longer than Oman originally planned. Oman's navy personnel are gaining technical expertise, but they are still dependent on British support.

The Omani Navy is headquartered at Seeb. It has four major combat ships, gunboats, 8 patrol boats, and seven amphibious vessels and landing craft. It has a ship maintenance and repair facility at Muscat, and naval bases at Ghanam island, Mina Raysut near Salalah, al-Masnaa al-Wudam Alwa (the main base), Alwi, Khasam, and Muscat. The new naval base at al-Masnaa al-Wudam was begun in 1977, and opened in mid-1988.

Oman's principal ships consist of four 394-ton Province-class fast attack boats, armed with 1 76mm OTO Melara L/62 gun, twin 40mm Breda Compact mountings, and 6-8 MM-40 Exocet missiles. Three of the ships have 2 X 4 Exocet missiles each, and one has 2 X 3. They were handed over to Oman in 1982-1988. The radar and fire control system includes a Racal-Decca TM1226C surveillance radar and Phillips 307 director.

Additional Exocet missals are on order from France, and Oman ordered two additional 1,400-ton, 83 meter, missile corvettes from Vosper-Thornycroft in late 1991. These ships will be armed with a 76mm gun, two 20mm guns, two nine barrel chaff/IR decoy launchers, and Exocet missiles. They will have modern radars, surveillance, and fire control systems, and will be fitted with an octuple Crotale ship-to air missile launcher to act as a close-in defense system. There will also be provisions for a 16 cell vertical-launch Seawolf missile system. No sonar or underwater defense systems are currently scheduled to be fitted, but they can be added at any time in the next two years ²⁸²

Oman has four 153-ton Brooke Marine (Al Wafji) 37.5 meter fast patrol boats, at least two of which are now armed with Exocet. These ships were delivered in 1977, however,

²⁸² Jane's Defense Weekly, September 7, 1991, p. 387, February 22, 1992, p. 273, May 23, 1992, p. 881.

and none has adequate air defense or a sophisticated modern sensor packages. The Omani Navy also has four 61-ton (Seeb) 25 meter patrol boats armed with Oerlikon 20mm guns, and eleven eight to 13 meter patrol boats.

Oman has one of the few GCC navies equipped for amphibious operations. It has one 2,500 ton and one 2,000 Landing ship Logistic (LSL), a 900-ton training ship with a helideck which is a converted royal yacht, three 230-ton LCMs, and 2 130-ton LCUs in service. The LSLs have good command and control facilities, a helipad, and the ability to carry two landing craft each with 200-240 men and seven to eight tanks. They are well suited for missions like seizing an oil platform or small island. Oman's auxiliary craft include the royal yacht, a 5,186-ton support ship, a 1,380-ton coastal freighter, and a survey craft. The Royal Oman police have 13 small coastal patrol craft, 3 logistics support craft, and 5 inshore patrol craft.

The main limitations to the Omani Navy are its lack of capital ships that could directly challenge Iranian ships, a lack of air defense capability, and a lack of mine warfare capability, and a lack of maritime surveillance capability, although it has several transports it uses for visual airborne surveillance. Like ASW, however, these are missions which the Omani Navy can probably safely leave to the U.S. and U.K. until it is ready for more sophisticated and more expensive missions.

Both British and U.S. ships and maritime patrol aircraft routinely support Oman in patrolling the approaches to the Straits of Hormuz, and the U.S. can rapidly supplement Omani forces with over-the-horizon reinforcements. The modernization of Omani forces should allow them to deal with low level contingencies and create some deterrent capability against medium level conflicts even without U.S. reinforcements.

The Omani Air Force

The Omani Air Force has about 3,000 men. Oman has experienced problems in getting the skilled manpower it needs for its air force, and still have only about 70% of its minimum requirement for pilots, but is gradually building up a cadre of native pilots. It also has a technical school and is trying to improve the technical base of its air force manpower. Its combat and technical training is still limited, however, and although the Omani air force is very small for a nation the size of Oman, it is still heavily dependent on foreign support and technicians.

Oman currently has 57 combat aircraft, and no armed helicopters. The combat aircraft include two attack squadrons with 22 Jaguar S(0), Mark 1/2s and T-2s based at Masirah Island. The Jaguars are good attack aircraft, but have only limited visual air-to-air combat

capability using guns and AIM-9-P4 infra-red missiles.²⁸³ Other combat aircraft include an fighter ground attack squadron with 16 Hawker Hunter FGA-6/FR-10/T-67 light attack/trainers based at Thamrait. There is a COIN/training squadrons with 12 BAC-167 Mark 82 Strikemasters and 7 BN-2 Defenders. Oman's air ordnance is relatively unsophisticated and includes R-550 Magique and AIM-9P air-to-air missiles, and BL-755 cluster bombs. Some 300 more AIM-9Ps are on order.

Oman sought to buy up to two squadrons of F-16 or Tornado fighters during the mid-1980s, and planed to expand Thamrait air base into a fully modern facility to base them. In 1985, Britain offered preferential terms for a Tornado sale and Oman ordered eight Tornados as part of a \$340 million arms package.²⁸⁴ Oman ran into funding problems, however, and lacked the skilled the manpower to operate such a force. As a result, it ordered 2 AS-202-18 trainers, and 16 Hawk trainers from the U.K. in 1990, at a cost of 150 million pounds Sterling. The 16 Hawks will include a mix of 20 series fighter/air defense aircraft and series 100 two-seat fighter trainers. Delivery will take place in 1993, and allow Oman to retire its aging Hunters to a training role.²⁸⁵

Oman's air defenses have undergone two major phases of improvement. The first during the early 1970s, and the second in 1985. The first provided a mobile British Aerospace system that integrated warning and command and control radars with Oman's Jaguars, Hunters, and BAC-176 Strikemaster aircraft, and with 28 Rapier fire units. Marconi provided early warning radars and communications systems. In 1985, Marconi received a contract to expand and improve the system. It provided two long range Martello third dimensional radars, with associated display and handling systems. These are now operational, and are linked to two improved Sector Operations Centers (SOCs), one improved Control and Reporting Centers (CRCs), and one new CRC. The CRCs in Muscat and new the border with Yemen are linked by tropospheric scatter communications systems. Oman has other air defense system improvements, and C³ equipment from France.²⁸⁶

Oman does not have any major surface-to-air missile systems in service or on order. The air force does, however, have two air defense squadrons, equipped with 28 Rapier surface-to-air missile fire units and Blindfire radars. These deploy around Oman's air bases

²⁸³ Oman bought some 300 AIM-9P4s in late October, 1985. Baltimore Sun, October 11, 1985, p. 9A; Oman: A Financial Times Survey, November 20, 1991, pp. I-IV.

²⁸⁴ Economist Intelligence Unit, EIU Regional Review: The Middle East and North Africa, 1986, Economist Publications, New York, 1986, p. 193.

²⁸⁵ Oman: A Financial Times Survey, November 20, 1991, pp. I-IV

²⁸⁶ Washington Times, May 9, 1985, p. 7.

and have moderate readiness. Oman shelters its main air bases at Masirah and Thamrait, which have been greatly improved with U.S. aid. It has additional military airfields and strips at Khasab on the Musandam Peninsula, collocated at the modern international airport at Seeb near Muscat, Nizwa, and Salalah.

Oman has three transport squadrons. One with 3 BAC-111, and two with 3 C-130H Hercules, 1 Mystere-Falcon 20, 7 Britten-Norman BN-2 Defender/Islanders, and 15 Short Skyvan 3M STOL aircraft. Oman has found the Skyvans to have great value in mountain and desert operations. The Omani air force helicopter force includes 3 AB-206 Jet Rangers, 20 AB-205, and 3 AB-212B/Bell 212s. The royal flight has two Gulfstreams, one DC-8, one B-747SP, two AS-202-18 Bravos, and 2 AS-332 and 4 SA-330 helicopters.

In broad terms, the Omani air force has evolved in an environment where the emphasis has been on close air support and interdiction missions in support of its ground forces. It has received moderate to good training in visual range air-to-air combat, but it is still dogfight oriented in air-to-air combat at time potential enemies like Iran are beginning to emphasize the use of radar vectoring, advanced look-down shoot-down radars, and long range missile combat. Maintenance and logistics seem to be good, but Oman has no modern radar or infrared reconnaissance assets and would need foreign assistance to conduct any significant form of electronic warfare.

Omani Paramilitary Forces

Oman has 3,500 men in its tribal forces (Firqat), most of very low capability, and approximately 7,000-9,000 men in police, coast guard, and border forces. The latter units are reasonably effective and operate some light aircraft, helicopters, and patrol boats. The Police Coast guard has 400 men, and 15 AT-105 armored personnel carriers, 11 coastal and 3 inshore patrol craft, 13 support craft, and 28 speed boats. The air wing of the police has 1 B-727, 2 Learjets, two Do-228-100s, two Merlin IVAs, 3 DHC-5 Buffalos, 6 Bell 214s, and 1 Hughes 369. There is a small 85 man security force on the Musandam Peninsula called the Shikuk Tribal Militia.

Strategic Interests and Arms Control

In spite of past tensions with tribal groups in Western Oman, and a Marxist sponsored rebellion in the Dhofar region in the south in the 1960s and 1970s, Oman no longer faces major internal security problems. It is one of the best managed states in the Near East and Southwest Asia. While its population is becoming increasingly politicized and somewhat less tolerant of Britain's role in Oman's government, the Sultan has coopted a large number of former rebels, modernized his government, and increased the rate of Omanization to the

point where British contract personnel play a far more limited role. Oman's five year plans have been relatively successful, in spite of the country's limited oil revenues. This has helped to offset the constant up and down cycles in its oil revenues, which have provided nearly 80% of government revenues.

Oman has consistently supported the West in ensuring the security of the Gulf and access to its oil exports. While it has placed some limits on U.S. access to facilities and exercises, it has done so only out of political necessity. The Omanis argue, with considerable justification, that they have provided considerably more support than they have received in return in the form of arms transfers and aid. While Oman does not need major shipments of arms, it is clearly one of the few Gulf nations that is underarmed for its own defense. It needs to modernize and improve the equipment of all of its military services. An arms embargo would leave it too weak, and too dependent on aging or obsolete equipment.

Oman has also argued for a 100,000-200,000 man joint Gulf Cooperation Council force, with the chairmanship rotating among the six members. This degree of integration is politically premature, and has revived some of the rivalry between Saudi Arabia (which sees itself as the natural leader of the GCC) and Oman (which is pressing for equality among each state). At the same time, integrated forces along the lines of NATO are the only way that the small Gulf states can achieve any overall military effectiveness.²⁸⁷

The Southern Gulf States: The Problem May Be The Solution

The southern Gulf states face several major security problems. The first is cooperation. If Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE are ever to create an effective regional deterrent, and minimize the need for U.S. and other power projection forces in an emergency, they must make significant further progress in each of the following areas:

- Creating an effective planning system for collective defense, and truly standardized and/or interoperable forces.
- Integrating C³I and sensor nets for air and naval combat.
- Creating joint air defense and air attack capabilities.
- Establishing effective cross reinforcement and tactical mobility capabilities.
- Setting up joint training, support, and infrastructure facilities.

²⁸⁷ Defense News, December 9, 1991, p. 42.

- Creating joint air and naval strike forces.
- Deploying joint land defenses of the PDRY border and of the Kuwaiti/Northwestern Saudi borders.
- Preparing for outside or over-the-horizon reinforcement.

It will be years -- if ever -- before the southern Gulf states cooperate effectively in these areas, and this leads to the second major problem affecting the military balance in the Gulf. The Gulf states must rely on Western power projection capabilities as the only substitute for effective collective defense, and they are so valuable strategically that the West must defend them. Yet, it is difficult for the southern Gulf states to cooperate effectively with the West. They must deal with the rise of Islamic fundamentalism, ongoing cuts in Western power projection forces, vestigial fears of any form of Western presence or prepositioning, the difficulties created by U.S. ties to Israel, and the problems the U.S. has in acting as a reliable advisor and source of arms in the face of American domestic political opposition to any arms sale that might threaten Israel.

Preparing for outside or over-the-horizon reinforcement is critical in any scenario involving a major Iraqi or Iranian threat. So far, however, only Bahrain, Kuwait, and Oman have signed agreements that would speed the deployment of U.S., British, and other Western forces. While useful, such arrangements lack strategic depth. Saudi cooperation is needed to preposition U.S. Army armor and other divisional equipment to allow the rapid build-up of armored forces. Large stocks of munitions and spares are needed to support U.S. Air Force units. The UAE and Oman need to make their air units, air defense units, naval forces, AC&W and C³I facilities interoperable with U.S. forces to allow effective naval and air operations.

The third problem that both the Southern Gulf states and the West face is that improved defense cooperation, and improved Western power projection capability, require a careful and well thought out approach to arms sales and arms control. At present, however, West and East are rushing into compete for sales that offer little prospect of integrated or interoperable defense efforts. Arms control efforts focus on all arms transfers to the entire region, when they should focus on region-wide efforts to shut down the flow of all weapons of mass destruction and target efforts to restrict the flow of conventional arms to prevent transfers to Iran, Iraq, and the unstable regimes in the Red Sea area.

While there are many ways that these problems could be solved that would meet the needs of the individual southern Gulf states, secure their collective interests, and make Western power projection far more effective, the real world reaction to these problems may

well be that the southern Gulf states and the West continue to live with them. Frustrating as this non-solution will be -- and has already been -- there seems to be no practical alternative to a series of unstable and informal alliances. Security is too important to each southern Gulf state. Oil is too important to the West. Arms sales are too important to whichever nation wants to sell. While the future of the southern Gulf can get worse, there is little realistic prospect that it can get better.