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## ***MASTER OF MILITARY STUDIES***

### **THE ROYAL SAUDI AIR FORCE AND LONG-TERM SAUDI NATIONAL DEFENSE: A STRATEGIC VISION**

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# EXECUTIVE SUMMARY

- Title:** THE ROYAL SAUDI AIR FORCE AND LONG-TERM SAUDI NATIONAL DEFENSE: A STRATEGIC VISION
- Author:** Lieutenant Colonel Turki K. Al Saud, Royal Saudi Air Force
- Thesis:** Technological advances employed in strategic offensive air operations during the Gulf War revolutionized war fighting in a desert environment and provides a basis for developing a new Saudi strategic vision emphasizing the central role for strategic air offense and joint inter-service war fighting.

## Discussion:

The strategic air offensive operations employed in the Gulf War revolutionized war fighting in a desert environment. The short duration of the Gulf War was due in large part to the effectiveness of the initial strategic air campaign in degrading the enemy's capabilities and its will to fight.

The role of the Royal Saudi Air Force in Saudi national defense strategy has been primarily defensive: air defense and support for ground forces. The technological advances that enabled the strategic air offensive in the Gulf War to be so successful thus provide a basis for developing a new Saudi strategic vision emphasizing a central role for air power.

## Conclusions:

The first conclusion of this study is that RSAF should assume the lead role in the national defense of Saudi Arabia. Not only is it financially, environmentally and demographically reasonable, but technologically realistic as well.

The second conclusion is that modern desert warfare is too technologically sophisticated for the service branches to operate independently of each other. Inter-service ground, naval and air planning and operations must be closely integrated under joint command and control, communications, computers and intelligence (C<sup>4</sup>I) as the cornerstone of a new strategic vision utilizing advanced military technology.

## Recommendations:

The paper recommends implementing a new national strategic vision that incorporates joint war fighting and assigns to the RSAF the lead role in national defense.

## INTRODUCTION AND OVERVIEW

Saudi Arabia's grand strategy for national defense has not basically changed in over 50 years, since the completion of the O'Keefe Report in 1949 that provided the first organizational plan for creating modern Saudi armed forces. With no aggressive designs on any of its neighbors, the Kingdom has developed its armed forces around the concept of strategic defense based on deterring and defending against external attack. While this grand strategy has not changed, operational Saudi defense strategy has evolved over the years in response to changing threats, available resources, and advances in technology.

This is particularly the case with the Royal Saudi Air Force (RSAF). In the last 30 years, the RSAF has received a higher priority for upgrading and development than the other service branches -- army, navy and air defense force.<sup>1</sup> In addition, Saudi air defense capabilities have been expanded in recognition of the increasing threat of long-range air attack by potential adversaries. A ground-based Royal Saudi Air Defense Force was created which shares the air defense mission with the RSAF.

The RSAF also began to develop a long-range offensive capability with the acquisition of F-15 aircraft and air-to-air refueling aircraft, particularly since the Gulf War of 1991. The Gulf War demonstrated that the RSAF could mount successful long-range strike missions, leading to the purchase of more advanced F-15S aircraft in 1992 with a long-range strike capability.<sup>2</sup> However, it has not as yet changed the basic missions of the RSAF as primarily air defense and support for the land force and the navy.

The central argument of this paper is that technological advances employed in strategic offensive air operations during the Gulf War revolutionized war-fighting in a



desert environment, and that this provides a basis for developing a new Saudi strategic vision emphasizing the central role for strategic air power.

The paper utilizes a case study approach -- one that analyzes how the introduction of technology in the Gulf War enabled the strategic air offensive operations to play a key role in victory against numerically superior ground forces. Two lessons for desert warfare are drawn from analysis of the Gulf War: 1) that effective defense against an aggressor must be based on joint war fighting; and 2) that the air force should be the lead service branch in Saudi defend and deter strategy.

Finally, the paper presents a strategic vision of how Saudi military strategy can be revised to incorporate those two lessons, and presents recommendations for how that vision could be achieved.

The remainder of this paper will take up the following topics: Chapter I will trace the evolution of the RSAF from its earliest days to a modern military service branch that came of age as a fully operational air force during the Gulf War. Chapter II will analyze the strategic air offensive during the Gulf War as a revolutionary advancement in the conduct of desert warfare. Chapter III will trace the evolution of the RSAF in the wake of the Gulf War. Chapter IV will argue that the revolutionary use of strategic offensive air power in the Gulf War provides a baseline for shaping a new, long-term strategic vision for the RSAF in Saudi national defense, and concludes with a strategic vision for the future. Chapter V summarizes the conclusions of the paper. Chapter VI presents recommendations on how the strategic vision might be achieved.

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<sup>1</sup> Anthony Cordesman, *Saudi Arabia Enters the 21<sup>st</sup> Century, X, The Saudi Air Force (in Draft)*, (Washington, DC: CSIS, 2001), p. 1.

<sup>2</sup> *Ibid.* pp. 20-21.

## CHAPTER I

### THE EVOLUTION OF THE ROYAL SAUDI AIR FORCE

In 1929, King Abd al-Aziz asked the British to provide air support to help put down tribal uprisings in the eastern part of the country, using aircraft the King had captured when he defeated the Kingdom of the Hijaz a few years before. The British responded with pilots, mechanics and additional aircraft, and thus the “Hijaz Air Force” was born. The air force, renamed the Royal Saudi Air Force in 1932 with the creation of the Kingdom of Saudi Arabia, maintained operations until World War II, even though the King demobilized his tribal army and the Kingdom had no standing army until after the war.<sup>1</sup>

In August 1945, the United States agreed to build an airbase at Dhahran to which the Americans would have access. In June 1949, the Americans signed a new agreement granting them access to the Dhahran base for three more years. At the same time, they agreed to make recommendations for the formation of a modern Saudi armed force.

An American team led by USAF Major General Richard O’Keefe traveled 44,000 miles in the Kingdom collecting strategic data and compiling a report that called for a Saudi defense force of 43,000 men, including a 28,000-man land force and an autonomous 15,000-man air force.<sup>2</sup> It can be argued that the O’Keefe report gave birth to the modern RSAF of today.<sup>3</sup>

In 1951, a Mutual Defense Assistance Agreement was signed between the two countries, the principal component of which was the creation of the U.S. Military Training Mission (USMTM) to Saudi Arabia. Established in 1953, it began the task of

helping the Kingdom to develop a modern air force.<sup>4</sup> In 1955, a squadron of A26B bombers was created. In 1957, the United States, in order to get around Congressional opposition to military sales to Saudi Arabia led by the pro-Israel lobby, “loaned” the Kingdom twelve F-86 combat jets. Title to the F-86s was formally transferred to the Kingdom in 1964.

Also in 1957, the RSAF created an air transport capability, Squadron 4, with C-123s and older C-47s. In 1965, the RSAF upgraded their airlift capability with C-130s. With a landmass as large as Saudi Arabia’s, airlift is a major element in national defense.

In early 1963, the Saudi Ministry of Defense and Aviation (MODA), working closely with USMTM, developed a reorganizational plan known as “Armed Forces Development Plan No. 1.” With the Yemen civil war drawing in Saudi Arabia and Egypt on opposing sides, the plan’s top priority was to create an organizational plan for the RSAF and an integrated air defense system. A follow-on U.S. air defense survey recommended to MODA that the RSAF acquire surface-to-air missiles, an air defense radar net, and three squadrons of twelve supersonic aircraft each. MODA preferred either American F-5s or F-105s, but were persuaded to purchase 40 British Lightnings instead. In the face of the Egyptian threat and because the new purchases could not become operational for several years, the British provided additional aircraft and a mobile air defense radar in an interim air defensive program known as Magic Carpet. The Lightnings, however, never had the range, dual capacity or avionics needed to defend the vast desert expanses of Saudi Arabia.<sup>5</sup>

By 1969, the Americans again offered to conduct another comprehensive military development study, and in January 1970, the Saudi Defense Minister, Prince Sultan bin Abd

al-Aziz, formally requested such a review. The study team was led by USAF Major General Oswald Leahy. Although the Leahy report, like its predecessors, was never formally adopted by MODA, it became the guide for long-range Saudi defense planning through the 1970s. One of the major conclusions of the study was that, due to severe manpower constraints, the Saudis should concentrate on more sophisticated weapons systems, developing capital-intensive rather than labor-intensive forces. This principle was uniquely applicable to the RSAF.

The first step for the RSAF was to upgrade its aircraft. In 1971, the Saudi Defense Minister, Prince Sultan, signed a Memorandum of Understanding to purchase newer model F-5s from the United States. A U.S. program called Peace Hawk was created to support the F-5s.<sup>6</sup> Nevertheless, the aging Lightnings were still the Saudi front-line fighter and needed replacing.

In 1978, after overcoming strong opposition from the pro-Israel lobby in Congress, the United States agreed to the sale of F-15s to Saudi Arabia to replace the Lightnings. The Peace Sun program was created to provide support and upgrades for the newly purchased aircraft in what was called a “litmus test” of the U.S.-Saudi military relationship. A second such “litmus test” occurred two years later in 1980 when, again despite strong lobbying by the pro-Israel lobby, the United States agreed to provide the RSAF an Air Enhancement Package which included five E-3A AWACS (Airborne Warning and Control System) aircraft, AIM-9L air-to-air missiles, and KC-135 air-to-air tankers, giving the RSAF the only effective mid-air refueling capability in the Gulf.

For the next five years, the RSAF tried to buy more F-15s as well as an advanced attack mission capability from the United States. The U.S. Administration looked

favorably on the sale, but Congress again opposed it. In 1985, President Reagan informed King Fahd that he was unable to get Congressional approval. The Saudis then turned to the British in a long-term purchasing, training, and maintenance program called al-Yammamah. In the initial phase, the British were to deliver 24 Tornado ADV air defense fighters and 48 Tornado IDS ground attack fighters. The first ADV aircraft did not prove reliable so the Saudis changed remaining ADV orders to IDS models. In the second phase of al-Yammamah, in 1988, the Saudis signed an agreement with the British government to purchase more Tornados plus training aircraft, radars, missiles and other munitions.<sup>7</sup>

In the late 1960s and early 1970s, the RSAF began developing an offensive capability in response to the Yemeni-Egyptian threat in Yemen. In November 1969 RSAF Lightnings and F-86s beat off an attack by South Yemeni troops on a southern border post at Wadiy'ah. The target was 300 miles from their home base at Khamis Mushayt, and forced the RSAF to begin thinking about upgrading their command and control and communications (C<sup>3</sup>), early warning, and a long-range combat capability.<sup>8</sup> That led to the acquisition of F-15s in 1978, the E-3 AWACS aircraft KC-130 air tankers in 1980, and the British Tornado IDS ground attack fighters in 1985.

The RSAF also gained limited combat experience. In the 1980s, during the Iran-Iraq war, an air defense identification zone and forward air defense system called the "Fahd Line" was created off the Gulf coast; and on July 5, 1984, the RSAF, in defending Saudi air space, shot down an Iranian F-4 that had challenged Saudi air defenses.<sup>9</sup> Thus, by the summer of 1990, when Iraqi President Saddam Hussein ordered his troops to invade Kuwait, the elements for an operational modern air force were in place.

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<sup>1</sup> David E. Long, *The Kingdom of Saudi Arabia*, (Gainesville, FL: University Press of Florida, 1967), p. 33.

<sup>2</sup> David E. Long, *The United States and Saudi Arabia: Ambivalent Allies*, (Boulder, CO: Westview Press, 1985), pp. 34-35.

<sup>3</sup> *Ibid.*, p. 42.

<sup>4</sup> *Ibid.*

<sup>5</sup> Anthony W. Cordesman, *Saudi Arabia Enters the 21<sup>st</sup> Century; IX: The Air Force*, (Washington: Center for Strategic and International Studies (in draft), 2001), p. 10.

<sup>6</sup> Long, *Op. cit.*, p. 61.

<sup>7</sup> Cordesman, *Op. cit.*, Chapter II will analyze the strategic air offensive during the Gulf War as a revolutionary advancement in the conduct of desert warfare. pp. 8-11.

<sup>8</sup> Personal communication, Major General Mohammad Ayeesh, RSAF, 31 December 2001.

<sup>9</sup> *Ibid.*, p. 6.

## CHAPTER II

### AIR POWER IN THE GULF WAR: REVOLUTION IN DESERT WARFARE

The Gulf War of January-February 1991 can be considered a revolution in desert warfare in that the decisive offensive campaign of the war was carried out independently by air power for the first time in history. In order to understand how this “revolution” came about, it is important to look at the linkage between strategic air offensive air operations and what has become known as the Revolution in Military Affairs (RMA).

For the past two decades experts in military strategy have been highly involved with integrating high technology into modern warfare. In 1984, Nikolai Ogarkov, the Soviet Chief of Staff, began to address how the U.S. long-range cruise missile would create a “revolution in military affairs.” At the U.S. Department of Defense, Andrew Marshall, a long-time senior official, adopted the term in seeking to encourage research and development of high technology systems and introduce them into military planning and operations. The technologies included digital communications, which allow global data to be compressed; a “global positioning system” (GPS) of satellites, which makes precise guidance and navigation possible; “stealth” technology, which enables radar evasion; and computer processing.<sup>1</sup> Military applications have centered on command and control systems, early warning systems, electronic warfare, electronic intelligence (elint), stealth aircraft, precision guided missiles and smart bombs.

These advances proved particularly applicable to air power. In the 1980s, a group of US Air Force planners began reflecting on the impact of technology on air power. Their reflections were manifested in three notable ways: “a new edition of Air Force

Manual 1-1, basic Air Force doctrine; intellectual challenging of the tenets of air power in such publications as Colonel John A. Warden III's, *The Air Campaign*; and the publication of *Global Reach--Global Power*.”<sup>2</sup> This body of thought coalesced in the planning of the air war in Desert Storm, “the most successful air campaign in military history.”<sup>3</sup>

The Gulf War and subsequent air offensives in Kosovo and Afghanistan have been heralded by many as the beginning of a new era of warfare in the twenty-first century.<sup>4</sup> Professor John F. Guilmartin, Jr., a specialist on the history of air power at Ohio State University, stated that with the war in Afghanistan, “we may have reached a critical mass” in which air power would move from its traditional role in supporting ground troops to the decisive role in war fighting with ground forces relegated to an ancillary role.<sup>5</sup> It is not the purpose of this paper to assess whether or not the lessons learned in the Gulf war have universal applicability. The Gulf War undeniably demonstrated the applicability of strategic air power under the desert conditions that exist throughout Saudi Arabia and most of the territory in which it might be compelled to wage a theater-sized war in the future.

There was little reason to believe that the United States, which came to the defense of the Gulf states against Iraqi after the invasion of Kuwait in 1990, would conduct the war any differently than had been done in similar previous regional conflicts. In 1988, the operational Gulf contingency plan, USCINCCENT OPLAN 1002-88, was created consisting of three phases -- deterrent, defensive and counter-offensive. Air power was seen as an essential foundation to success in a defensive phase to protect deploying U.S. ground forces.



The stated U.S. objectives in the Gulf War, which became the Coalition objectives, included: 1) securing the immediate, unconditional, and complete withdrawal of Iraqi forces from Kuwait; 2) restoring the legitimate government of Kuwait; and 3) assuring the security and stability of the Persian Gulf region.<sup>6</sup> To meet these objectives, the use of air power had always been defensive, with little thought given to offensive employment or any other independent use of air power.<sup>7</sup>

Nevertheless, in late 1989, when Iraq appeared as the most likely threat to regional stability,<sup>8</sup> CENTCOM contingency planners had already begun updating their assumptions for a faster reaction and larger force levels in case of a Gulf war. Counter-air and interdiction were added to the defense phase.<sup>9</sup>

On 10 August 1990, General Shwarzkopf requested the Chairman of the Joint Chiefs of Staff, General Colin Powell, to authorize a “strategic bombing campaign aimed at Iraq’s military.”<sup>10</sup> Colonel John Warden quickly came up with a provisional plan along the lines of his strategic vision called Instant Thunder that called for a massive strategic air campaign. Powell and Shwarzkopf liked the concept, and on August 19th Warner and his team flew out to Riyadh to brief General Horner, who was also acting as CINCCENT (Forward) until General Shwarzkopf arrived in the Kingdom.

Horner had problems with Instant Thunder because he did not think it adequately addressed the large number of Iraqi troops already deployed on the Iraqi-Saudi border.<sup>11</sup> This concern reflected a dilemma facing CENTCOM. In the early days of Desert Shield, planners had to prepare for the contingency that the Iraqis, who had (on paper at least) an overwhelming superiority in men and materiel, might launch an attack on Saudi Arabia before the Americans and other Coalition partners could build up their forces. Thus

Coalition planners, while they did provide for air-ground offensive operations, were compelled initially to focus mainly on a joint campaign for the defense of Saudi Arabia:

Besides being a part of the offensive campaign that became the Desert Storm plan, attacks on Iraqi forces in the Kuwait Theater received attention during the fall of 1990 in the planning for a contingency in which Iraq attacked Saudi Arabia. On 14 August, Central Command and Saudi officials formed the U.S.-Saudi Joint Directorate of Planning (JDOP) at the Saudi Ministry of Defense headquarters in Riyadh to develop combined operations plans. The JDOP's first product, Combined Operations Order 003, published on 20 August, assigned CENTCOM forces missions in concert with Saudi and Coalition regional forces to defend Saudi Arabia as far forward as possible. The concept of operations had Saudi forces establish a picket line close to the northern border while U.S. forces shielded Jubayl and Ad Dammam/Dhahran to protect deploying U.S. forces at those major airports and seaports of debarkation.<sup>12</sup>

At the same time, however, General Horner tasked Brigadier General Buster Glossen, who headed up a forward CENTCOM Special Planning Group in Riyadh known as the "Black Hole,"<sup>13</sup> to come up with an operational plan "to achieve national and military objectives to *win (sic)* the war through air power alone; that is, to make the ground campaign unnecessary."<sup>14</sup>

Every day that passed without an Iraqi offensive increased the likelihood that the strategic air offensive concept of Instant Thunder would ultimately prevail. By mid-September 1990, Generals Powell, Shwarzkopf and Horner were all convinced that, should there be a military engagement, the combined air force response would be an offensive air campaign.<sup>15</sup> In the end, the Coalition countries accepted the concept and it was incorporated into Desert Storm the following January.

Planners designed Operation Desert Storm in four phases: 1) Strategic Air Campaign; 2) Air Superiority in the KTO (Kuwait Theater of Operations); 3) Battlefield Preparation; and 4) Ground Offensive Operations. According to the Coalition Combined

Operational Plan OPLAN, execution of the phases were not necessarily sequential, and “phases may overlap as resources become available or priorities shift.”<sup>16</sup>

Phase I concentrated on gaining and maintaining air superiority:

This goal was a basic tenet of air operations, and its achievement would generate at least three specific advantages in the war. First, the incapacitation of airfields and the air defense system would allow sustained prosecution of attacks against the other target sets. Second, command of the air would prevent Iraqi offensive strikes against Coalition forces, in particular strikes delivering chemical weapons. Third, the Coalition would prevent Iraqi reconnaissance flights that might uncover the shift of ground forces to the west, the surprise to be sprung at the start of the ground offensive.<sup>27</sup> The planners therefore directed their most intense and immediate attention to destroying the Iraqi defense system through the use of F-117s, other aircraft employing anti-radiation missiles to attack radar systems, and a vast array of electronic countermeasures.<sup>17</sup>

The Coalition air forces then targeted the political and national leadership, command and control systems, strategic air defenses, aircraft/airfields, strategic chemical, biological, and nuclear weapons facilities, Iraqi armed forces and Republican Guard forces, telecommunications facilities, and key elements of national infrastructure (communication lines, power grids, and military production facilities).<sup>18</sup>

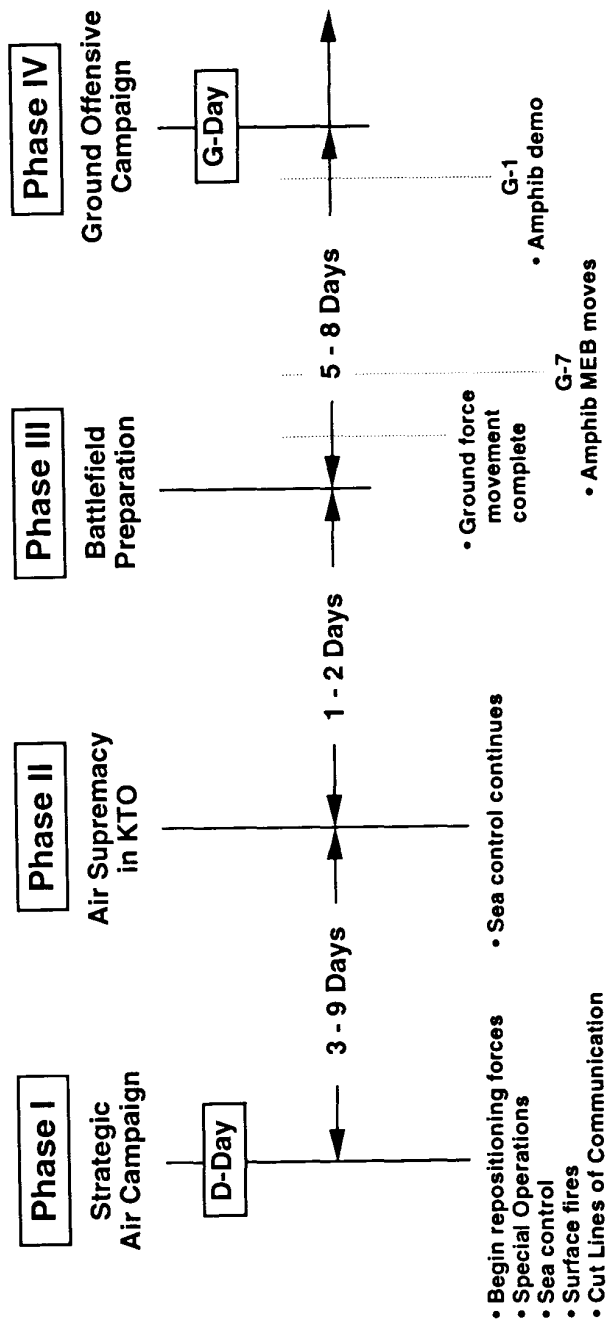
Phase II shifted the air effort to the KTO, to destroy Iraqi air defense in Iraq and Kuwait – destroying aircraft, airfields, air defense systems and command and control systems “to provide an environment in which B-52s, tactical air and attack helicopters can operate effectively in subsequent phases.”<sup>19</sup>

Phase III was structured around US Army doctrine that stipulated that a reduction of 50 percent of a ground force unit’s capabilities would make it no longer combat effective. Therefore, General Schwarzkopf had emphasized the need for the Coalition air forces to target the Iraqi army and its equipment, and in particular, destroying as much of Iraq’s armor and artillery as possible, prior to the beginning of the ground war.

From the very first day of the air campaign, B-52 strikes every three hours hammered Iraqi forces, while other attackers went after supply depots, headquarters, supply lines, bridges, convoys, and individual vehicles. From the outset, planners were confident that they could achieve genuine interdiction against Iraq--not only because it was a desert environment (in fact, the region between the Tigris and Euphrates rivers is quite fertile), but because of the remarkable precision of modern air-delivered weapons. Very quickly, artificial distinctions between " strategic" and " tactical" warfare disappeared, as did restricted thinking that typecast certain aircraft as "battlefield attack" or "deep strike" vehicles. In the actual war, for example, F-111F Aardvarks and F-15E Strike Eagles proved devastatingly effective anti-armor aircraft, dropping laser-guided smart bombs on Iraqi tanks, while the A-10 " Warthog" went deep into Iraq, hunting for Scud missiles. Planners capitalized on the fact that an aircraft is an aircraft--it is the mission that determines whether a particular strike is " strategic" or " tactical." When two Boeing E-8A JSTARS theater surveillance aircraft arrived, Generals Schwarzkopf, Horner, and Glosson realized that though they were experimental, they could still offer profound leverage over Iraqi forces by detecting vehicle movements throughout the Kuwaiti Theater of Operations, acting like an AWACS for the ground forces.<sup>20</sup>

Air force planners believed that if the first three phases met the joint planners expectations, the war would essentially be over and Phase IV, the Ground Offensive Operations, would consist merely of liberating Kuwait and mopping up the remnants of the Iraqi army and Republican Guard. They were somewhat optimistic in estimating how

Figure 1  
Phases of Operation Desert Storm



<sup>51</sup>(S/NF) originally (TS/NF/SPECAT), USCINCCENT, U.S. OPLAN Desert Storm, 16 December 1990, np. GWAPS, CHC 18-2.

Source: Thomas A. Kearney and Eliot Cohen, *Gulf War Air Power Survey: Summary Report*, (Washington: Government Printing Office, 1993), p. 50.

long the air war would take (see Figure 1), but the results confirmed the soundness of the strategy. The strategic air campaign commenced on 17 January 1991, and by the time Phase IV, the Ground Offensive Campaign began on 24 February, the Iraqi ground forces, whose capabilities had been seriously degraded by air attacks, had lost virtually all their will to fight. Thus, the short duration of the ground war was due in large part to the effectiveness of the air campaign.

In addition to the unprecedented success of the strategic air offensive campaign, there was another element of the Gulf War that, while not “revolutionary,” was crucial to victory. That was the integration of service branches and coalition partners into joint war fighting. Although the United States, as the largest and most advanced component of the Coalition, spearheaded the planning and operations of the Gulf War, special attention had to be given to insuring that the war was a joint effort, particularly with the Saudi hosts. Prior to the war, there had been no joint command structure between the United States and Saudi Arabia, and no combined (Coalition) operations plan. Both had to be created before the Coalition forces moved into the theater.<sup>21</sup> Fortunately, Gen. H. Norman Schwarzkopf, Commander-in-Chief of Central Command (CINCCENT), in charge of U.S. military operations in the Southwest Asia, and LTG Chuck Horner, Commander of the Joint Forces Air Component, and their counterparts, LTG Prince Khalid Bin Sultan and LTG Ahmad Ibrahim Behery, made it a top priority to establish good interpersonal relations.<sup>22</sup> Joint war fighting was a major key to the success of Coalition in the Gulf War.

## Summary Conclusions:

Several things stand out in this brief overview:

- First, the strategic air offensive lived up to expectations as a decisive element in achieving victory.
- Second, the concept of an independent strategic air campaign in a regional conflict, already envisioned several years earlier but never incorporated in an operational plan, was based on tremendous advances in military technology in the prior two decades. According to General Horner, “The Gulf War demonstrated the possibilities available to a nation that decides to revolutionize its military operations. If used effectively, precision weapons, Stealth aircraft, space reconnaissance, and rapid communications would so change military affairs that today’s military leaders would no longer recognize the military in which they served.”<sup>23</sup>
- Third, another crucial element leading to success in the Gulf War was the high degree of joint planning and operations cooperation among the Coalition partners. The complexities and precision of the new military technologies require a high level of joint planning and operations that are contrary to traditional attitudes toward inter-service cooperation within many armed forces. This complexity is compounded further in coalition warfare that must coordinate among multiple independent command structures and is absolutely crucial if a strategic operational plan is to succeed. Thus, it would seem entirely reasonable that lessons learned in a desert war fought by a coalition could also apply to a strategic vision for the national armed forces of a desert state.

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<sup>1</sup> “Select Enemy. Delete,” *Economist*, 8 March 1997, pp. 21-24.

<sup>2</sup> *Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War-- A Report – September 1991*, p. 1.

<sup>3</sup> *Ibid.*

<sup>4</sup> See for example Eliot Cohen, “A Revolution in Warfare,” *Foreign Affairs*. March-April 1996, pp. 37-54.

<sup>5</sup> “Bull’s Eye War: Pinpoint Bombing Shifts Role of GI Joe,” *Washington Post*, December 2, 2001, p. A 1.

<sup>6</sup> United States, National Archives and Record Administration, Office of the Federal Register, *Public Papers of the Presidents of the United States: George Bush, 1990*, Book II, (Washington: Government Printing Office, 1993), p. 1108.

<sup>7</sup> Kearney, Thomas A., and Eliot Cohen, *Gulf War Air Power Survey: Summary Report*, (Washington: Government Printing Office, 1993), p. 28.

<sup>8</sup> Eliot Cohen, *Gulf War Air Power Survey, Volume I: Planning and Command and Control*, (Washington: Government Printing Office, 1993), Part 1, p. 20.

<sup>9</sup> *Ibid.*, pp. 26-27.

<sup>10</sup> H. Norman Schwarzkopf with Peter Petre, *It Doesn’t Take a Hero*, (New York: Bantam Books, 1992), p. 363.

<sup>11</sup> Cohen, *Op. cit.*, Part 2, p. 158. See also Tom Clancy with General Chuck Horner, *Every Man a Tiger*, (New York: G. P. Putnam’s sons, 1999), pp. 255-265.

<sup>12</sup> *Ibid.*, Part 1, p. 47.

<sup>13</sup> The term refers to the astronomical high energy phenomenon that sucks up everything within its reach; it was applied to the planning group because group members worked almost around the clock and thus virtually “disappeared.” See Clancy, *Op. cit.*, p. 267.

<sup>14</sup> Cohen, *Op. cit.*, Part 2, p. 170.

<sup>15</sup> *Ibid.*, p. Part 2, p. 169, Note 36.

<sup>16</sup> *Ibid.*, Part 1, p. 4.

<sup>17</sup> Kearney and Cohen, *Op cit.*, p. 41.

<sup>18</sup> *Ibid.*, p. 5.

<sup>19</sup> *Ibid.*

<sup>20</sup> *Reaching Globally, Op. cit.*, p. 2.

<sup>21</sup> Cohen, *Op. cit.*, Part 2, p. 43.

<sup>22</sup> Thomas A. Kearney and Eliot Cohen, *Op. cit.*, pp. 157-158.

<sup>23</sup> Clancy, *Op. cit.*, p. 505.



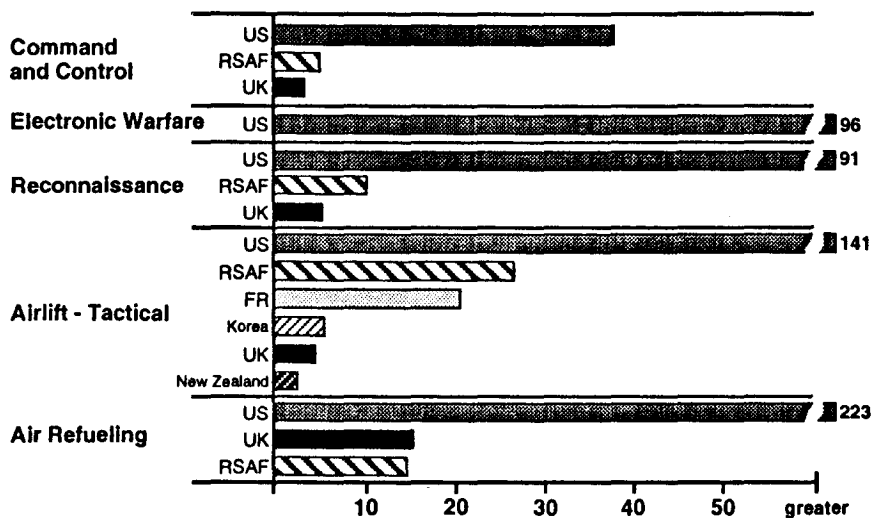
### CHAPTER III

#### THE IMPACT OF THE GULF WAR ON THE RSAF

The RSAF entered the Gulf War as the most modern air force in the region and acquitted itself well. It not only played a crucial support role as the host nation's air force, but it also had the force structure to play a role second only to the United States in command and control, reconnaissance and airlift and tactical air, and third behind Britain in air refueling.

Figure 2

#### Coalition Aircraft totals in Key Elements of Air Power Support)



Source: Thomas A. Kearney and Eliot Cohen, *Gulf War Air Power Survey: Summary Report*, (Washington: Government Printing Office, 1993), pp. 182.

Saudi Arabia, however, had never before participated as a major actor in a major theater campaign; and above all, the Gulf War provided the RSAF, and indeed the entire Saudi Armed Forces, with a great learning opportunity, both in terms of experience gained under combat conditions, and in terms of lessons learned.

The RSAF flew 6,852 sorties, about 6 percent of all sorties flown during Desert Storm, ranking second to the USAF. These included 1,656 offensive sorties, including 1,133 interdiction missions and 523 battlefield air interdictions, and 2,281 defensive sorties, including 2,050 defensive counter-air missions, 129 offensive counter-air missions, and 102 escort missions. In addition, it flew 118 reconnaissance sorties, 85 AWACS sorties, 485 refueling sorties and 1829 airlift sorties.<sup>1</sup>

Starting a day before Desert Storm, RSAF F-15Cs flew 2,088 sorties (over one-third the number flown by USAF F-15Cs, and 451 Tornado ADV sorties). RSAF pilots maintained the same level of proficiency in these air defense sorties as NATO pilots. The Saudis also flew 665 Tornado GR.1/IDS strike sorties, 1,129 F-5 sorties and 118 RF-5 sorties. Saudi F-15s shot down two Iraqi Mirage F-1s with air-to-air missiles, including the only double kill in the war, on 24 January.<sup>2</sup>

As important, if not even more so than combat experience, was the experience gained in planning and operational command and control. This was achieved despite the absence of a tightly knit combined command structure.<sup>3</sup> The problem of joint command was solved by an innovative arrangement involving parallel international commands -- one, headed by General Schwarzkopf, incorporating the forces from the Western countries, and another, under the Saudi commander, Lieutenant General Khalid bin Sultan bin Abd al-Aziz, for the forces from the Arab and Islamic countries.<sup>4</sup> In addition, on August 14, very soon after the Iraqi invasion, CENTCOM and MODA formed the U.S.-Saudi Joint Directorate of Planning (JDOP) at MODA headquarters to develop combined operations plans.<sup>5</sup>

Saudi officers participated in the planning phase as well as in strategic and tactical command and control functions during Desert Storm. RSAF officers, for example, participated in the operation of the Tactical Air Control System, “a collection of organizations, including (to name a few) the Tactical Air Control Center (TACC), one or more Air Support Operations Centers (for Army-Air Force coordination), and the small but critical groups of personnel who man systems such as AWACS (Airborne Warning and Control System) and ABCCC (Airborne Battlefield Command and Control Center) aircraft.”<sup>6</sup> The TACC coordinated all Coalition air units across the theater. The fact that the Saudi air defense system is based on U.S. made equipment (such as AWACS) also helped Saudi and American commanders and their staffs work closely together as did the fact that airmen use English as an international language.<sup>7</sup>

Two lessons from the Gulf War listed in the RSAF Training Manual are the importance of developing joint warfare capabilities, including centralization of command and control and decentralization of implementation; and that air superiority was a major factor in determining the outcome of the war.<sup>8</sup>

The importance of joint centralized command and control and decentralization of implementation was stressed by General Horner as a crucial element in contributing to the success of the air war:

In the Gulf War decisions were delegated to the lowest level possible. Targeting was done by the Air Operations Center Plans section. Once the Air Tasking Order (ATO) was drafted for a period 48 hours in advance, it was submitted for review to a number of agencies. National military leaders in theater represented their governments. All lateral and subordinate commands represented by large liaison teams in the TACC (Tactical Air Control Center, now referred to as the Combined Air Operations Center, CAOC) were encouraged to comment on the draft ATO. There was one plan, one coalition planning staff and one Joint Force Air Component Commander responsible for building the air plan and thereby nominating the targets, but all were free to add value or made critical comment....

This unprecedented decentralized execution authority greatly facilitated rapid re-targeting of strike aircraft and response to enemy initiatives such as the battle for Al-Khafji or the Iraqi retreat from Kuwait City. It turned the air-to-ground battle into a process with timelines not unlike those historically used for air-to-air operations. Most of all it exploited the advantages afforded by the precision strike and ISR technology of our forces.<sup>9</sup>

Air superiority has long been recognized a basic tenet of air operations. The 1943 U.S. Army Air Force field manual, *Command and Employment of Air Power*, stated, “The gaining of air superiority is the first requirement for the success of any major land operation.”<sup>10</sup> What was new in the Gulf War was that air superiority enabled the Coalition air forces to launch an independent offensive campaign to destroy Iraqi command and control and significantly degrade the capabilities of Iraqi ground troops and their will to fight before the ground offensive was launched. Gaining air superiority, therefore, became the first phase of Desert Storm.<sup>11</sup>

In the decade following the war, Saudi Arabia has applied some of the lessons from the Gulf War, particularly in upgrading its air offensive capabilities. In 1992, it purchased 72 F-15S aircraft, of which 48 were configured for strike/attack missions.<sup>12</sup> These strike/attack F-15s are far more advanced than any fighters in the inventories of Iran and Iraq, the two most powerful potential adversaries, and will probably give Saudi Arabia an edge over the next decade.<sup>13</sup> At the same time, it has not updated its strategic thinking about the role of air power. The RSAF mission has remained essentially unchanged: air defense and supporting the land and naval forces.

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<sup>1</sup> Cited in Anthony Cordesman, *Saudi Arabia Enters the 21<sup>st</sup> Century, X, The Saudi Air Force (in Draft)*, (Washington, DC: CSIS, 2001), p.6. Figures are based on Eliot Cohen, *Gulf War Air Power Survey, Volume V: Statistics*, (Washington: Government Printing Office, 1993), pp. 232, 279-287.

<sup>2</sup> *Ibid.* Figures are based on Cohen, V, pp. 316-317, 335, 340, 343, 641, 653-654.

<sup>3</sup> Cohen, *Op. cit.*, Part 2, p.45.

<sup>4</sup> United States, Department of Defense, *Conduct of the Persian Gulf War Special Report to the Congress Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 2992 (Public Law 102-25)*, April 1992.

<sup>5</sup> Thomas A. Keaney and Eliot Cohen, *Gulf War Air Power Survey: Summary Report*, (Washington: Government Printing Office, 1993), p. 47.

<sup>6</sup> *Ibid.* p. 2.

<sup>7</sup> *Ibid.*, pp. 46-47.

<sup>8</sup> Kingdom of Saudi Arabia, Ministry of Defense and Aviation, Department of Air Force Training, Division of Culture and Education, *General Education for Royal Saudi Air Force Personnel*.

<sup>9</sup> Lt Gen Chuck Horner, Personal Communication, 27 December 2001.

<sup>10</sup> United States Air Force, *Organization and Employment of Aerospace Powe (AFDD 2)*, 17 February 2000, p. 19.

<sup>11</sup> Kearney and Cohen, *Op cit.*, p. 41.

<sup>12</sup> Cordesman, *Op. cit.*, pp. 22-24.

<sup>13</sup> *Ibid.*

## CHAPTER IV

### THE FUTURE ROLE OF THE RSAF IN SAUDI NATIONAL DEFENSE: A STRATEGIC VISION

This chapter will argue that, given the Kingdom's military threats and strategic environment and given the technological breakthroughs that enabled air power play a dominant role in the Gulf War, a new strategic vision is needed that expands the role as well as the strategic capabilities of the RSAF within a joint warfare framework.

According to the RSAF Mission Statement, RSAF's mission is to:

...provide the necessary air power to defend the security and safety of the air space of the Kingdom and ensure its protection from any attack and to contribute with other branches of the armed forces in consolidating the freedom, security and stability of the Kingdom. Therefore, the main mission of the Air Force revolves around organizing, training and preparing units to contribute to the defense and the means for staving off [attacks] and the necessary air combat operations to defeat the enemy.<sup>1</sup>

To understand the rationale behind the RSAF mission, it is necessary to look at the political parameters governing Saudi national defense strategic thinking. Politically, Saudi Arabia has had no aggressive designs against any of its immediate neighbors. Border disputes, which were for many years the most serious major source of contention, have virtually all been adjudicated. The Kingdom is currently in the process of demarcating the last major disputed border with Yemen. In this defensive posture, overall Saudi military strategic planning has long been and is likely to remain deterring and repelling aggression.

Given these parameters, the RSAF developed a force structure emphasizing air defense and a support role for the land and naval forces providing airlift across long distances, close air support in ground engagements under desert conditions and in naval

engagements. The revolution in desert warfare in the Gulf War, involving closely integrated joint warfare command and control and introducing an unprecedented strategic air offensive campaign, has influenced the way Saudi Arabia looks at long-term strategic planning; but it has not as yet changed the basic strategic vision of the RSAF or of the armed services in general.

Based on recent past history, Iran and Iraq are the most likely potential military threats today, but military threats are constantly subject to change in a region so politically volatile as the Arabian Gulf, and it is impossible to say whether they will be so in the future. Forty years ago, Egypt was the major threat and is now a close ally. Moreover, both the Iraqi and the Iranian armed forces have been significantly degraded, Iran's since the revolution in 1979 and the Iran-Iraq war, and Iraq's since the overwhelming defeat in the Gulf War. In practical terms, therefore, there currently is no major impending strategic military threat to the Kingdom.

A more constant factor in seeking a long-term strategic vision for Saudi Arabia, therefore, is the strategic environment. Whatever country or countries might pose military threats in the future, the Kingdom's desert environment will remain essentially the same. Whatever other modifications occur in Saudi national defense strategy and threat analysis due to changing threats and advances in technology, its desert environment will continue to be a major determinant in dictating how conventional military engagements will be fought. The major elements of the Kingdom's strategic environment include geography, climate, topography, and human, natural and financial resources.

Geographically, Saudi Arabia is bounded on two sides by water, the Red Sea in the west and the Arabian Gulf in the east, and in the north and south by extended land borders. As no maritime country in the region has nor is likely to have the capability to pose a major amphibious threat in the foreseeable future, attacks by land or air (including sea borne missile attacks) will remain the most likely sources of military threats. With the exception of a few mountain areas in the southwest, the Arabian Peninsula has a predominantly desert climate and an open topography with limited water resources, very little ground cover and difficult off-road conditions.

These factors favor the development of air power. According to the *Gulf War Air Power Survey*, prepared by the United States Government following the war:

The overall political and physical conditions of the [Kuwait] theater proved uniquely suitable to the deployment and application of air power.... The desert has always proven the most favorable environment for the application of air power, and in this war it afforded the additional important benefit of removing most concerns about collateral damage throughout much of the Kuwait Theater.<sup>2</sup>

Demographically, the Kingdom, despite its high population growth rate, is sparsely populated for a country of its size. Its available human resources cannot compete with its two largest potential adversaries, Iran and Iraq, which have over twice to nearly four times the population of Saudi Arabia. The Kingdom does not have the manpower to create a large standing army to defend against more highly populated neighbors. The best way the Kingdom can maintain military parity, much less superiority, over countries with much greater populations is by maintaining a capital-intensive military capability such as can be provided by a modern air force.

Saudi Arabia is rich in natural resources, having about one fourth of the world's proved oil reserves. Its oil and gas installations are particularly vulnerable to air attack,



requiring a concentration of air defense assets in the Eastern Province where most of them are located. In light of the disparity between the size of its armed forces and those of neighboring potential adversaries, and recognizing the vital global strategic importance of its vast oil reserves, the interdiction of which would be devastating to the global economy, the Kingdom sought to exploit the national interests of major and regional oil consuming countries to help protect the Kingdom against external military threats to the unimpeded flow of oil at market prices. The resulting close military cooperation with friendly Arab states, other Muslim and Western states, notably the United States and Britain, was demonstrated by the participation of the Coalition forces during the Gulf War.<sup>3</sup>

Even with the best intentions of friendly countries, however, the Kingdom cannot be wholly dependent on foreign protection. It took six months for the Gulf War Coalition to coalesce. Moreover, a strategic air offensive capacity would be a strong deterrent to potentially hostile oil-producing countries that would be vulnerable to counter-attack against their oil and gas installations.

Financial constraints make capital investment in the armed forces difficult. As Saudi Arabia entered the 21<sup>st</sup> century, world oil prices, the country's main source of income, were just recovering from two decades of a glut in oil supplies. In 2002, however, a world recession exacerbated by the economic impact of the World Trade Towers attack further depressed prices. Even when prices recover, however, the population explosion will continue to depress per capita income and limit the total amount of expenditures the government can allocate for military spending.

Each service branch must receive a certain amount of funding to maintain combat effectiveness in the face of rapid technological change. Nevertheless, faced with limited financial resources, the air force, which is by its nature capital intensive, is the most cost-effective recipient of capital investment.

In making the case for a revolution in desert warfare through the use of strategic air offensive operations, we must also look at counter-arguments. Viewed from a historical perspective, the revolutionary changes in the role of air power in desert warfare introduced in the Gulf War simply hastened evolutionary trends that had been proceeding for many years and should be applied under the current military strategy. It could be argued, for example, that the Israeli Air Force played an equally decisive role 35 years ago in the 1967 Arab-Israeli War under similar desert warfare conditions, providing close air support for ground forces as a counterbalance the enemy advantage in manpower. In the Gulf War, however, air power went far beyond that, significantly degrading Iraqi army capabilities and undermining its will to fight *before* the ground offensive -- Phase 4 of Desert Storm -- was launched.

It could also be argued that the changes to desert warfare introduced by the Gulf War are not really applicable to Saudi strategic defense since the war's purpose was neither to defend nor to deter, but to drive the Iraqis out of Kuwait. However, the joint Coalition planners did not know in the months immediately following the Iraqi invasion whether or not President Saddam planned to continue his offensive and invade Saudi Arabia, and they had to plan for that contingency as well as for driving the Iraqis out of Kuwait. Strategically, the Gulf War was as much if not more to defend the security of Saudi and Gulf oil in general as to drive out the Iraqi invaders.

More importantly, it was not the aims and goals of the Gulf War that necessitate rethinking about Saudi strategic defense. It is the implications of revolutionary advances in military technology – e.g. C<sup>4</sup>I, precision guided missiles, smart bombs, electronic warfare – that can enable air power to play such a decisive strategic role in victory over a more powerful aggressor in a desert environment.

In sum, the strategic environment presents powerful reasons for Saudi Arabia to make expanding of the role of air power its first priority in long-term military development, particularly strategic air offensive capabilities.

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<sup>1</sup> As drafted in the Saudi Arabian Council of Ministers meeting no. 2017 of 22 Dhu al-Hijjah 1374 A.H. (11 August 1954 A.D.), and published in Royal Decree no. 635/3/S dated 6 Muharram 1395 A.H. (19 January 1975 AD).

<sup>2</sup> Thomas A. Keaney and Eliot Cohen, *Gulf War Air Power Survey: Summary Report*, (Washington: Government Printing Office, 1993), pp. 178-179.

<sup>3</sup> The immediate aim of the Gulf War was to drive Iraqi troops out of Kuwait; but the strategic driver was the threat by Iraq to the unimpeded flow of Gulf oil, of which Kuwait is a major producer but Saudi Arabia is a vital producer. A more recent statement of U.S. Security Strategy for Southwest Asia (the Gulf) reads, “The United States remains focused on deterring threats to regional stability and energy stability....,” The President of the United States, *A National Security Strategy for a Global Age* (Washington, D.C., December 2000), p. 58.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

This paper has stressed the need for the Royal Saudi Air Force (RSAF) to assume the lead role in the strategic defense of Saudi Arabia. Technological advances in modern warfare demonstrated in the Gulf War and the Saudi strategic environment, including geography, climate, topography, and human, natural and financial resources, all strongly support this conclusion.

The second major conclusion is that the RSAF and the other branches of the Saudi armed services must be more highly integrated into a joint services organizational structure. Modern desert warfare is too technologically sophisticated for the service branches to operate independently of each other. The concept of jointness does not assume that the service branch command structures should be consolidated. Each branch has its independent missions to perform. It does mean, however, that there needs to be a joint command and control structure to insure that all service branches are in communication with each other and that they plan and carry out strategic and tactical operations that complement and reinforce each other.

One should also be careful not to assume that placing the RSAF in the lead role in Saudi strategic defense diminishes the strategic importance of the other service branches. For example, in the southwestern part of the country, air warfare is not as strategically effective as in the rest of the Kingdom. There, the terrain is mountainous, ground cover is abundant and overland travel is tortuous, requiring a combined ground-air operational plan more similar to the mountain warfare Afghanistan than to desert warfare. In

addition, air power may have a more limited role to play than other services in asymmetrical warfare. Except against major guerrilla operations, where air power has proven its effectiveness, the Saudi intelligence services, the Land Force, National Guard and for coastal defense, the Navy may be more appropriate branches to deal with an asymmetrical warfare threat.

Finally, but importantly, the revolutionary advances in strategic offensive air power during and after the Gulf War give the Kingdom the opportunity significantly to reduce the Kingdom's dependence on foreign military assistance in deterring and defending against external attack. This does not mean ending the strategic cooperation the Kingdom has developed over the years with the West, particularly the United States. It is the strong mutual interest of all the parties to maintain close cooperation in protecting the national security of Saudi Arabia, both for oil security, and in the case of the RSAF and the Saudi Armed Forces in general, to have access to the best and most advanced military technology available. A strong, independent Saudi military defense capability, however, will make strategic cooperation stronger, not weaker.

The new strategic vision presented in this paper might not be totally able to deter adversaries with the military capability and the political determination from engaging in offensive operations against the Kingdom, but it would certainly force potential aggressors to consider very carefully the costs Saudi Arabia can inflict on them before launching an attack. Moreover, regardless of shifting international political winds and changing political alliances, it would provide the Kingdom with the means to defend its national security from potential military threats no matter where they might arise.

## Recommendations:

The strategic vision called for in this paper seeks adoption of a new national defense strategy organized around a joint service war-fighting concept with a lead role for the RSAF. The following recommendations are intended as suggestions for implementing that vision both at the Joint Staff level and in the RSAF:

### Joint Staff Recommendations:

At the Joint Staff level, implementing the strategic vision will require expanding the Joint Staff and integrating joint C<sup>4</sup>I and theater-level planning and operations.

- Create a new strategic national defense doctrine based on joint warfare.
- Strengthen, reorganize, and train the Joint Staff to manage the conduct of integrated joint planning and operations at the theater level. Strengthening includes upgrading its C<sup>4</sup>I capabilities; reorganizing includes creating new job positions to implement joint warfare and reassigning outstanding officers from all branches to the Joint Staff; and training includes instruction for Joint Staff officers on how to perform their expanded roles.
- Schedule regular joint war games. Regularly scheduled war games are among the most important training tools for Joint Staff to become used to working side by side in an integrated effort, discover procedures that need to be improved and anticipate problems likely to arise in future crisis situations.

### RSAF Recommendations:

The RSAF is currently the most advanced air force in the Gulf region, but at the present time, it is not capable of performing missions commensurate with the expanded

role envisioned in the strategic vision. Its current capabilities are uneven. RSAF air defense capabilities are quite good but its offensive capabilities are still rudimentary, and its joint warfare capabilities need to be greatly improved. Offensively, the first priority is to be able to gain and maintain air superiority over potential aggressors. This requires intensive upgrading of secure communications, early warning, electronic warfare, sensor, and reconnaissance/intelligence capabilities. It must also improve its offensive capabilities against ground and naval units and close air support.<sup>1</sup>

In short, for the RSAF to play the lead role outlined in the strategic vision will require bottom up reorganization, retraining, and a long-term acquisitions program to enable it to perform a balanced mix of offensive, defensive, and support missions. The key objective is to enable the RSAF to gain and maintain air superiority, to degrade enemy offensive capabilities, to support the other branches in close air support, air lift, and to maintain adequate C<sup>4</sup>I for the Joint Staff, the RSAF and other branches.

- Reorganize the RSAF command structure to reflect its multiple missions. The most logical RSAF configuration would be to reorganize the Air Staff to coordinate a theater air war within a joint war fighting environment, and to create three subordinate commands: a tactical air command, a strategic air command, and an air support command, the latter to include air transport, early warning, electronic warfare, and intelligence/reconnaissance assets.
  
- Revise and reform RSAF training programs to promote joint warfare doctrine and the RSAF's expanded missions. Closer coordination with other service branches will require changes in planning and conducting air operations. Upgraded aircraft

and weapons systems will require more sophisticated and intensive maintenance and pilot training. The problem of availability of qualified air force personnel should be alleviated by the bulge in the numbers of young people coming onto the labor market, a trend that is not likely to change in the near future. As is the case with the Joint Staff, special emphasis should be placed on regular RSAF war games simulating real wartime conditions in order for staff personnel to gain experience in managing an air war within a new strategic vision.

- Revise and reform acquisition policies and procedures to be more cost effective in the face of financial constraints. Acquisitions within each branch should be justified on the basis of long-term inter-service needs. In order for the RSAF to be able to carry out its expanded mission in the new strategic vision, it must prioritize its needs in a long-term plan, being careful to meet only greatest and most urgent needs first. At present, these needs include upgrading early warning and command and control systems and creating effective electronic warfare and reconnaissance /intelligence capabilities. In choosing among competing systems, multipurpose aircraft are far more cost effective than single-purpose or even dual purpose aircraft, and new systems such as unmanned aircraft could save both lives and billions of Saudi riyals required for the next generation in military technology and weapons systems upgrades.



- Schedule regular RSAF command post exercise (CPX) war games. Regular CPX war games enable RSAF commanders to gain experience managing an air war for minimal costs.

A national defense strategy incorporating this vision is ambitious, both in capital, manpower and training costs and in the time required to make it fully operational. The Kingdom does not have the financial resources, the trained manpower, or the equipment to implement it all at once. Fortunately, the degraded nature of the Kingdom's most likely adversaries allows time – twenty years or more -- for a long-term development plan to reach established goals set forth to reach this strategic vision. Long-term development is also the most cost effective, given the rapid development of new military technology and plummeting costs of advanced weapons systems such as unmanned aircraft, smart bombs and precision guided missiles.

In sum, the most effective means for the long-term national defense of Saudi Arabia is to continue to evolve in a careful deliberate manner, but never losing sight of how best to incorporate technological advances into an overall policy of strategic defense in a desert environment. For the mid to long-term future, strategic offensive air power can best meet that challenge.

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<sup>1</sup> Anthony W. Cordesman. *Saudi Arabia Enters the 21<sup>st</sup> Century; IX: The Air Force*. Washington: Center for Strategic and International Studies (in draft), 2001, p. 2.

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