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Saudi Military Forces and Development:

Challenges & Reforms

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I. Introduction

The Saudi security apparatus is undergoing major changes. Saudi Arabia no longer faces a major threat from Iraq, but must deal with the growing risk that Iran will become a nuclear power. This confronts Saudi Arabia with hard strategic choices as to whether to ignore Iran's efforts to proliferate, seek US military assistance in deterring Iran and possibly in some form of missile defense, or to acquire more modern missiles and its own weapons of mass destruction.

The Kingdom's most urgent security threats, however, no longer consist of hostile military forces. They have become the threat of Islamic extremism and terrorism. Saudi Arabia faces a direct internal and external threat from Islamic extremists, many affiliated with Al Qaida or exile groups, and it must pay far more attention to internal security than in the past. At the same time, it must deal with the fact that this threat not only is internal, but also is regional and extends throughout the Islamic world. Saudi Arabia's religious legitimacy is being challenged, and its neighbors and allies face threats of their own.

Saudi Arabia must also make major adjustments in its alliances. The events of "9/11," the backlash from the Israeli-Palestinian conflict, differences over how to deal with terrorism, and differences over the Iraq War have all combined to complicate Saudi Arabia's security relations with the US, and to force it to distance itself from the US in some ways. At the same time, the Al Qaida terrorist attacks on Saudi Arabia in May 2003 made it brutally clear that Saudi Arabia was a full participant in the war on Islamic terrorism and had even stronger incentives to cooperate with the US in anti-terrorism. Similarly, Saudi Arabia has not found any substitute for US power projection capabilities in dealing with Iran, instability in Iraq, or Yemen, and needs US technical assistance to deal with massive and continuing deliveries of US military equipment.

The Gulf Cooperation Council has made some advances in military cooperation and internal security, but remains largely a hollow shell. There is no true integration of security efforts and only symbolic progress towards collective security. Interoperability remains poor at every level, there is little progress towards effective power projection and sustainability, and virtually no meaningful progress towards the creation of the kinds of information technology, C4I (Command, Control, Communications, Computers, and Intelligence), IS&R (Intelligence, Surveillance, and Reconnaissance, and net-centric systems that could tie together the forces of the GCC, as well as make Saudi cooperation with US forces far more effective. At the same time, petty rivalries continue to divide the Southern Gulf states, and Saudi Arabia face serious problems in dealing with Yemen and in obtaining Yemeni cooperation in blocking the infiltration of terrorists and the smuggling of arms and narcotics.

Saudi Arabia does maintain military ties with Europe, particularly with Britain and France. Some Saudi officials see efforts to expand the role of NATO in the Middle East as a way of both reducing de facto Saudi dependence on the US, and of using NATO as a more politically acceptable cover for Saudi military ties to the US. Saudis, however, are all too aware of the real world limits on European power projection capabilities, and as to the limits of the power projection forces NATO and the EU are trying to build. They fully

understand that Europe will not be able to replace the US in assisting Saudi Arabia to deal with serious foreign threats at any time in the foreseeable future.

All of these factors interact with a longer terms set of threats to Saudi stability that are largely economic and demographic, but which may well be more important than any combination of outside military threats and the threat of Islamic extremism and terrorism. Saudi Arabia has embarked on a process of political, economic, and social reforms that reflect a growing understanding by the governing members of the royal family, Saudi technocrats, and Saudi businessmen that Saudi "oil wealth" is steadily declining in relative terms, and that Saudi Arabia must reform and diversify its economy to create vast numbers of new jobs for its growing and young population.

There is a similar understanding that economic reform must be combined with some form of political and social reform if Saudi Arabia is to remain stable in the face of change, and that the Kingdom must be far more careful about the ways in which it uses the revenues from its oil exports and its other revenues. This means hard decisions about future arms imports and investments in military and security forces. Massive changes are needed in Saudi military planning, and especially in military procurement and arms imports, to create balanced and effective forces at far lower cost.

As yet, Saudi Arabia's security apparatus has only begun to react to these changes. Its military forces are only beginning to adapt to the fact the Iraqi threat has largely disappeared, that Iran's threat is a mix of proliferation and capabilities for asymmetric warfare and not the build-up of conventional forces, and that it is engaged in a generational struggle against domestic and foreign Islamic extremism. It has begun the process of deeper political, economic, and social reform, but it has only made a beginning; its plans are still half formed, and no aspect of reform as yet has the momentum necessary to succeed. Like much of the Arab and Islamic world, Saudi Arabia also seems culturally unable to honestly address its demographic problems and rapid population growth. It can deal with the symptoms, but not the cause.

Given this background, the current structure of the Saudi security apparatus is only one key to security. It is Saudi ability to formulate and execute policies that can cope with the major changes that must be made in the Saudi approach to strategy. The finer details of governance are really of passing interest at best, and are necessarily transitional. The real question is how quickly Saudi Arabia can change and adapt its overall approach to security, and how successful it will be in the process.

II. The Saudi Security Apparatus and Saudi Military Forces

The current Saudi security apparatus is a complex mix of regular military forces, a separate National Guard, and various internal security and intelligence services. Saudi Arabia's military forces are only one element of this security structure and are currently divided into five major branches: the Army, the National Guard, the Navy, the Air Force, and the Air Defense Force. Saudi Arabia also has large paramilitary and internal security forces, and a small strategic missile force.

Saudi Arabia has made significant progress in creating modern and effective military forces, but it still faces major problems in the leadership and organization of its armed forces. It also has significant problems in manpower numbers, quality, and management. The Kingdom faces the traditional problems all states face in organizing and commanding large military forces, and in shaping and funding the future structure of its armed forces.

The Leadership of the Saudi Security Apparatus

Civilian control of the Saudi security apparatus is absolute, but it is extended through the royal family and not through the methods common in the West. Saudi military forces are formally under the direct control of King Fahd bin Abdul Aziz Al Saud. King Fahd is the Prime Minister of Saudi Arabia, Custodian of the Two Holy Mosques (since adopting the title in 1986 to substitute for "His Majesty") and the Commander-in-Chief of the Saudi Armed Forces. He is one of the sons of the Kingdom's founder, and assumed power of the Kingdom on June 13, 1982 after the death of King Khalid Bin Abdul Aziz. Prior to his current appointment, King Fahd became Saudi Arabia's first Minister of Education in 1953; he was appointed Minister of Interior in 1962. He held this post until he became Crown Prince in 1975.¹

In actual practice, Crown Prince and First Vice Prime Minister Abdallah bin Abdul Aziz Al Saud (half-brother to the monarch and Crown Prince since 13 June 1982, has acted a regent since January 1996, and has steadily played a more leading role in shaping the country's security policy. All major policy decisions are normally made by a group of senior members of the royal family, however, and two other major princes play a critical role: Prince Sultan bin Abdul Aziz Al Saud, the Second Vice Prime Minister and the Minister of Defense and Civil Aviation, and Prince Nayif bin Abdul Aziz Al Saud, the Minister of Interior.

While Crown Prince Abdullah and his son Prince Mitiab bin Abdullah, the Assistant Vice Commander of for Military Affairs, control the National Guard, most actual decision-making affecting the regular armed forces is taken by the Minister of Defense. Prince Sultan bin Abdul Aziz Al Saud, has been the Minister of Defense and Aviation since 1962, and the Second Vice Prime Minister since 1982. Prior to these positions, Prince Sultan held numerous government posts including; Governor of Riyadh, Minister of Agriculture and Minister of Communications. Prince Sultan has now spent four decades shaping and modernizing Saudi Arabia's armed forces, has made most policy decisions relating to military procurement, and has supervised the construction of modern military bases and cities throughout the Kingdom.² The Saudi National Guard is under a separate chain of command. Crown Prince Abdullah bin Abdul Aziz, the First Vice Prime Minister, has commanded the National Guard since 1963.

Prince Nayif has been the Minister of Interior since 1975. He effectively controls the General Security Services (internal intelligence services), the Public Security Administration Forces (the police), the Civil Defense Forces (fire service), the Border Guard, the Coast Guard, the Passport & Immigration Division, the Mujahadeen Forces, the Drug Enforcement Forces, the Special Security Forces, and the General Investigative Bureau. Like the other senior princes, Prince Nayif has held prior gubernatorial and

ministerial posts such as: Governor of Riyadh, Vice Minister of Interior, and Minister of State for Security Affairs.

Saudi Arabia has a number of intelligence services, and the three leading princes who hold government positions have their own intelligence support (Crown Prince Abdullah: National Guard Intelligence Directorate; Prince Sultan: Military Intelligence which is comprised of officers from the four major branches of the armed services; Prince Nayef: General Security Service, the domestic intelligence service). The most important intelligence service is that formerly controlled by the Prince Turki Al Faisal, who was appointed Director-General of the General Intelligence Directorate by King Khalid bin Abdul Aziz in 1977. He held this position until he was replaced by Prince Nawaf bin Abdul Aziz on September 1, 2001. This service has been renamed "The General Intelligence Presidency" during Prince Nawwaf's tenure. The service focuses on external intelligence matters affecting Saudi Arabia and its mission is to gain a better understanding of the relationship between extremist groups in Saudi Arabia and the flow of currency both within the Kingdom and beyond its borders.³

The Importance of Consensus and Consultation

While these royal chains of command divide the control of the Saudi security apparatus by senior prince, it is important to understand that the senior leaders of the royal family normally operate by a consensus reached at a number of levels. It is rare for any major decision not to be discussed informally by the most senior princes. This discussion generally includes consultation and advice from all of the relevant princes at the Ministerial level, supported by a mix of outside advisors and technocrats within the key security Ministries.

Interviews indicate that there is nothing rigid about this process, and that senior Ministers can act quickly and with minimal amounts of technical advice. Such actions are rare, however, and the senior princes often staff their decision making process with analyses of options, budget implications, and advice on the internal political, social, and religious impact of their decisions.

The lack of clear and well established procedures for collective planning and review does, however, present problems in terms of analyzing the effectiveness and cost of given decision and options. This is particularly true when decisions cut across the lines of responsibility from one senior prince to another, and when they are not part of the normal flow of annual decision making. Coordination between planning, policy, and budget decisions for the regular armed forces, National Guard, internal security services, and intelligence branches is tenuous at best. These problems are compounded by the fact that other princes act as governors and play a major role in shaping internal security at the regional level, while dealing with Islamic extremism involves a wide range of other ministries and religious leaders.

It is unclear, however, that the end result is really any better informed in terms of realistic inputs than the more formal and highly structured processes common in the West – which often produce little more than a morass of lowest common denominator bureaucratic "wisdom" and supporting statistical illusions.

The Leadership of the Saudi Military Forces

The Saudi command structure has slowly improved, but still lacks some of the elements necessary for a modern command structure, and these problems are greatly complicated by the fact that the regular military forces and National Guard have totally separate command, planning, and budgeting operations up to the level of the respective commanders.

The military chain of command under Prince Sultan tends to be cautious and over-compartmented, and is only beginning to encourage combined arms operations or “jointness” in the form of close cooperation between the services. Command relationships are highly personal, informal relationships often define real authority and promotion, and the senior commanders of their respective services maintain tight control over operations, deployments, procurement, and all other aspects of Saudi military spending.

The Saudi high command tends to reward longevity, conservatism, and personal loyalty rather than performance. Many senior commanders are from families with long ties to the Saudi royal family, and many mid-level officers come from families and tribes that are traditionally loyal to the Al Saud family. At the same time, the level of education and experience of Saudi officers has improved strikingly since the mid-1950s -- when most officers had a traditional background. The military forces are also less political.

The royal family has kept a moderate profile at lower levels within the armed forces. There are royal family members in a number of senior command positions, but others have deliberately been given lower ranks to allow officers outside the royal family to hold command slots.

Saudi Arabia still makes many promotions for political reasons and because of nepotism. It has been slow to develop systems of rotation that retire senior officers and systems that modernize the higher levels of command. There are many good high-ranking officers, but there are also many mediocre and overcautious loyalists.” Senior officers often serve far too long, and block the promotion of younger and more capable officers below them. Some treat their positions as sinecures or positions they can exploit for profit.

At the same time, younger Saudi officers may have a traditional cultural background, but they are increasingly well educated and often have considerable technical proficiency. The Saudi military services have also developed impressive modern headquarters and management systems, with the support of Western advisors and technicians. As a result, there is a relatively high degree of military proficiency in many areas. This is particularly true at the tactical level and in those junior to mid-level positions where professionalism is more important in defining power and status than political contacts and family or tribal background.

The Saudi National Guard has a much better reputation within the Kingdom and among its foreign advisors for promoting on the basis of merit, for setting training standards and insisting that they be met, and for avoiding corruption. Budget control is tighter, and the National Guard does not make the vast purchase of advanced weapons technology that complicate the planning and budgeting problems of the regular armed forces.

There have been few overt signs of political activism in the Saudi military in recent years, but there are reports of extensive reviews of the political loyalty of both regular and National Guard personnel since a series of terrorist attacks in Riyadh in May 2003.

Management, Budgeting, Leadership, and Civilian Control and Management of the Regular Armed Services

Prince Sultan, the Second Vice Prime Minister and Minister of Defense and Aviation, has made a major and enduring contribution to the Kingdom's military development. However, many of his senior commanders have not always provided the kind of leadership Saudi Arabia's military needs. These individuals often focus on massive equipment purchases, and to have insufficient patience to deal with the manpower management, operations and maintenance, and sustainability issues that shape real-world military effectiveness. In general, the military commanders seem to find it easier to plan strategy, and make dramatic new arms purchases, than take the kind of hard, consistent, and systematic decisions necessary to translate strategic ideas into operational and mission-oriented war fighting capability. The end result is that Saudi arms purchases have sometimes done more to disorganize the Saudi military, and create conversion problems, than they have done to improve it.

Senior generals in the different military services have also failed to adequately recognize the manpower and financial constraints on the expansion of Saudi military forces. Prince Sultan's vision -- announced in a 1996 speech —has not yet been realized by senior generals: "We have great plans to modernize the armed forces during the next five-year plan. The broad headlines have been made starting with the training of the individual to securing modern equipment. The sixth plan for our armed forces, which may begin next year, will be, God willing, a plan of expansion not only in purchases but in men and attracting Saudi school and university graduates."⁴

Perhaps fortunately, the financial constraints imposed by low oil revenues curbed such modernization plans. Unfortunately, senior military planners failed to react to these constraints by adequately downsizing and slowing Saudi procurement plans, and by creating more realistic annual budgets and five year plans that stressed investing in balanced war fighting capabilities rather than procurement. After 1995, key military activities like manpower quality, training and exercises, sustainment, and maintenance were underfunded. The Air Force also suffered from corruption at the higher command level, a problem that was corrected several years ago.

The Ministry of Defense and Aviation has much room for improvement in effectively exerting central management over the services to ensure that they maintained readiness and converted effectively to new equipment, and allowed each service to develop very different levels of capability by branch. Until recently, no effort was made to develop cohesive plans to ensure suitable progress in interservice cooperation or jointness, in combined arms, and in balancing the development of combat arms with suitable sustainment and support capabilities. Cost savings in many of these areas were used to fund equipment orders that should have been downsized and renegotiated, and when

years of high oil revenues did occur, the Ministry sometimes sharply over spent its budget by making new arms purchases.

Senior officials like Prince Khaled bin Sultan -- Assistant Minister for Military Affairs -- recognized that the Ministry of Defense and Aviation needs to shift from a focus on force build-up to a focus on force effectiveness, and introduce tight top-down budget and program management. The Ministry has failed, however, to develop effective planning, programming, and budgeting systems that ensure that there are effective fiscal controls, and procurement, manpower, and operating and maintenance systems.

This makes it difficult to plan and control cash flow for major arms buys. It encourages "stovepiped" funding of different elements of the military forces, and makes it harder to control waste and corruption. There are no stable force modernization and force expansion goals or efforts to shape and fund balanced war-fighting capabilities. There seems to be no centralized system to assess the war fighting capability and readiness of Saudi forces and monitor measures of effectiveness. There also is no public transparency of the kind that ensures funds are spent effectively, or that allows Saudis inside and outside the Ministry of Defense and Aviation to assess what the five-year plan is, how the budget is allocated, or how money is actually spent.

In fairness, these same problems affect every military force in the Middle East to some degree, including Israel. A combination of outdated paternalism, exaggerated and pointless secrecy, and treating defense as a virtually fiefdom of the ruling elite is the rule in the region and not the exception. Nevertheless, there are a number of high level Saudis, including some junior members of the royal family, who hope that future new equipment buys will be reduced and streamlined in order to concentrate on military effectiveness and fund a sustainment for the Army and Air Force so as to minimize waste. Although Saudi Arabia needs to reshape its priorities, in general the planning and management of the National Guard has been significantly better than that of the different armed services of the Ministry of Defense.

There is a similar need for better direction and leadership in the upper echelons of each military service, and for changes in command and doctrine that will make Saudi military thinking and operational plans less static, improve every aspect of force planning and management, and prune the upper levels of command. Saudi Arabia needs to move from a nation whose military forces are static and defensive in character to one with military forces that are oriented towards maneuver and speed of concentration, and joint warfare. It also needs to match its close collective security ties to the United States and other Western powers with much more effective efforts to developing coalition war fighting capabilities with the other Southern Gulf states -- most notably Bahrain, Kuwait and the United Arab Emirates.

These problems in organization and high command are compounded by the fact that Saudi Arabia has one of the most complex force postures of any developing nation, and it operates some of the most advanced military technology in the world. In several cases, this technology is more advanced than that in many developed NATO countries. Furthermore, Saudi Arabia has just completed the final stages of massive infrastructure programs that have created some of the world's most modern facilities out of empty desert. It is beginning to produce its second generation of ranks with modern military

training. Only a little more than a generation ago most of its troops were traditional villagers with only limited education and technical background.

Still, these problems need to be kept in perspective. The Saudi military forces have often been criticized by those who have little appreciation of the challenges they face and how much they have already accomplished. Saudi Arabia's military planning and management may have been imperfect, but so is that of every other country that has tried to cope with the on-going revolution in military affairs. Saudi Arabia has already overcome massive challenges in terms of manpower, infrastructure, and technology transfer. It has a very solid mix of infrastructure and existing equipment holdings to build upon, and relatively high level of overall tactical proficiency for a major developing nation.

The Kingdom can draw on military support from the West, and Saudi Arabia has been fortunate in its potential enemies. Iran has never fully rebuilt its conventional forces since it experienced massive losses at the end of the Iran-Iraq War. Iraq suffered a devastating defeat in the Gulf, and UN sanctions have blocked any major arms imports since the summer of 1990. Yemen's forces have been weakened by civil war, and the government's lack of funds has prevented major arms imports since the end of the Cold War. Saudi Arabia may have its military problems, but its most serious potential threats have had military disasters.

Saudi Arabia faces difficult challenges in determining and providing the proper levels of military spending in effectively managing its funds and in deciding upon the proper level of arms imports. Uncertain oil revenues and steadily expanding civil demands for entitlements, and civil investment, have greatly reduced the ease with which the Kingdom can sustain high levels of defense expenditures. At the same time, Saudi Arabia can still afford to spend far more on its military forces than the other country in the Middle East, Iraq's military spending has been severely restricted by UN sanctions, and Iran's economic problems have sharply limited what it can spend on military forces.

Saudi Military Expenditures

There are a number of different estimates of Saudi expenditures, and of the burden they impose on the Saudi economy, but most agree to the extent they report extremely high levels of spending. US Department of Defense estimates show that Saudi spending peaked during the Gulf War, then dropped in the mid to late 1990s as Saudi Arabia came under increasing financial pressure because of comparatively low oil revenues and increase civil spending burdens caused by major population increases. In fact, 1995 was a year of Saudi fiscal crisis, and led to cuts that reduced Saudi spending by 33% between 1990 and 2000. Other Department of Defense sources indicate, however, that Saudi expenditures leaped back up in 2001 as a result of a sudden "boom" in oil expenditures.

Reporting by the US State Department indicates that Saudi Arabia spent \$8.3 billion on defense during January 1 to December 31, 1999.⁵ It notes, however, that the Saudi government does not have separate line items budgets for defense and national security. As a result, such estimates of defense spending include Ministry of Interior expenditures and are therefore somewhat misleading. According to this estimate, Saudi Arabia spent 13% of its GDP and 41.65% of its national budget on military forces during this period.⁶

The International Institute of Strategic Studies (IISS) uses Saudi budget data to calculate the total Saudi security budget, including internal security, using data provided by the Saudi Arabian Monetary Agency (SAMA). According to the IISS, this spending totaled \$18.4 billion in 1999 (69 billion riyals), \$20.0 billion (74.9 billion riyals) in 2000, and \$21.1 billion (78.9 billion riyals) in 2001. These figures indicate that Saudi Arabia spent 40% of its total budget on national security in 2000, 37% in 2001, 34% in 2002, and 33% in 2003. A detailed examination Saudi budget data indicate that national security spending is kept relatively high even in low budget years, but that Saudi Arabia is slowing increasing the percent of its budget going to the civil sector.

It is hard to assess how Saudi military expenditures are spent in detail. The Saudi budget is provides no detail of any kind. Furthermore it does not include all purchases of military equipment, construction, and services. Saudi Arabia does not report all of the relevant costs in its budget documents -- particularly costs of defense relating to the purchase of foreign defense goods and services. Saudi Arabia has often increased its defense expenditures after the budget was issued without reporting them, and has never publicly reported the actual cash flow it has spent on arms imports or on the value of the oil it has sometimes used in complex barter deals.

This lack of transparency in the Ministry of Defense and Aviation, National Guard, and other Saudi security-related budgets reflects broad and serious problems in the management of Saudi defense resources. It makes it impossible for Saudis inside and outside military and security activities to provide intelligent criticism of the way the Kingdom spends its resources. Perhaps more important, it seems to disguise a critical lack of effective planning, programming, and budgeting in the Ministry of Defense and Aviation (MODA). If the MODA has anything approaching a five-year plan that keeps procurement, manpower, and operations and maintenance expenditure in the proper balance, it certainly is not clear from Saudi actions. This lack of transparency also seems to disguise serious problems in exerting the proper fiscal controls and reviewing, particularly in regard to arms orders and procurement spending.

Finding the Proper Level of Expenditure

The total cost of Saudi military efforts since the early 1970s has exceeded several hundred billion dollars, even if one excludes the cost of the Gulf War. The Kingdom spent from \$14 to \$24 billion a year on defense during the later 1970s and the 1980s, its full-time active military manpower increased from 79,000 to 126,500.⁷ Much of this expenditure -- probably on the order of 60-65% -- was spent on infrastructure, foreign services and maintenance, and basic manpower training. Saudi Arabia had to create entire military cities, new ports, and major road networks. It had to create modern military bases in the middle of its deserts, and pay for far more extensive training than most of the military manpower in the Third World receives.

There were good reasons for many of these expenditures during the period Saudi Arabia had to create a modern military force. Saudi recruits, whether nomad or townie, had to be brought to the point where they could operate modern military equipment, and buy a pool of equipment and munitions large and modern enough to give Saudi Arabia the ability to deter Iran and Iraq. Since the mid-1980s, Saudi Arabia has been able to shift from

creating basic military capabilities and infrastructure to a slower and less expensive build-up of combat capabilities.

The cost of the Gulf War placed a massive new burden on the Kingdom, however, and such expenses had to take place at the cost of “butter,” and helped lead to chronic Saudi budget deficits.⁸ In fact, the Gulf War pushed Saudi military and security expenditures to the crisis level. Saudi security expenditures rose from 36% of the total national budget in 1988, and 39% in 1989, to nearly 60% in 1990. Although any such estimates are highly dependent on exactly what aspects of the cost of Saudi support to allied military forces during the Gulf War should be included, the percentage rose to around 70% in 1991-1992 -- including the cost of aid to allied governments during Desert Storm. It declined to around 30% after 1992, and has remained at the 30-40% level ever since.

The IISS provides a separate estimate for actual spending versus the planned budget. It estimates recent actual spending at \$21.8 billion in 1999 (81 billion riyals), \$18.7 billion (70 billion riyals) in 2000, \$24.7 billion (78.9 billion riyals) in 2001, and \$22.2 billion (69.4 billion riyals) in 2004. Actual spending tends to rise if Saudi Arabia faces an increase in the threat, increase internal security expenditures, makes major arms purchases, or simply takes advantage of unexpectedly high budget revenues. It is clear that the senior Saudi leadership sometimes personally increase spending or alters the budget in such cases with little consultation or regard for the niceties of the Saudi budget process.

What is not clear is why Saudi military expenditures remained so high after the Gulf War. The long pipeline of arms deliveries ordered in reaction to the war explains some of the high expenditures, early to mid-1990s, but they should have tapered off more rapidly after the mid-1990s than the data available indicates. In fact, both the size of Saudi arms deliveries after 1995, and the ratio of deliveries to new agreements after 1995, is much higher than can easily be explained by the volume of actual arms deliveries or Saudi needs.

Similarly, military constructions expenditures seem excessive. The Kingdom completed most of its infrastructure and basic force development expenditures by the late 1980s. This should have led to sharper cuts in such expenditures during the period after the Gulf War, and this is particularly true given the systematic under funding of manpower quality and sustainment from the mid-1990s onwards. Once again, the explanation seems to be poor planning, programming, and budgeting by the planning officials at the Ministry of Defense and Aviation.

Saudi military expenditures have also consumed too large a percentage of GDP and as a percent of total government expenditures. The US State Department estimates indicate that Saudi Arabia spent about 20% of its GDP on defense during 1983-1986. They ranged from 16% to 23% of the GNP during the 1980s, peaked at 27-29% in 1990-1992, and have since dropped to around 14%. The percentage was only about 8.5% in 1996, however, if GDP is measured in purchasing power parity.⁹ The Department of Defense has somewhat different estimates. They indicate that Saudi expenditures peaked at 26-28% in 1990-1992, dropped to 10.2% in 1995, rose to around 14% through 1996-1998, and were around 13% in 1999 and 2000.¹⁰

Saudi military expenditures averaged around 40% of all central government expenditures (CGE) before the Gulf War, and rose to a peak of 60-73% during the Gulf War. As the previous data have shown, they then dropped back to around 35%-40%. US officials estimate that Saudi expenditures accounted for approximately 35-40% of all Central Government Expenditures, and 12.9% of the GNP, in 2000.¹¹ Even so, this is still an exceptionally high percentage for a Saudi government that must fund so large a mix of welfare, entitlement, and civil investment expenditures.

There is no way to establish a "golden rule" as to what share Saudi military and security expenditures should consume of the GNP or total budget. It is clear that the recent spending has placed an increasing strain on the Saudi budget and economy. At the same time, these percentages are not easy to cut. Saudi Arabia must spend about \$13 to \$15 billion a year, in 2002 dollars, if it is to maintain its present forces and rate of modernization. It should be noted that the military is making an effort to save some money by taking such steps as increasing its repair capabilities, which would reduce the number of spares normally required to be stockpiled while systems are en route for overseas repair.¹²

Saudi Arms Imports

Saudi Arabia has long been dependent on other nations for virtually all of its arms and military technology. Saudi Arabia is making slow progress in developing an indigenous arms industry. Saudi Arabia has made progress in the support, supply, and operations and maintenance areas. It can produce some small arms, automatic weapons, and munitions, but much of the Saudi portion of the work consists of assembling imported parts rather than real manufactures. A number of other programs consist of efforts where a foreign arms supplier has agreed to set up defense-related industrial efforts in Saudi Arabia to "offset" Saudi spending on arms imports.

Some of these "offset" efforts have been useful in reducing the need to import technology, services, and parts, but many others are more symbolic efforts to employ Saudis than substantive efforts to aid the Saudi military or industrial base. It is scarcely surprising, therefore, that Saudi Arabia's military build-up and modernization has led to massive expenditures on military imports.¹³ These spending patterns also help explain why Saudi Arabia has ranked as one of the world's ten largest military importers in every year for the last two decades. It ranked first in both new arms agreements and in actual arms deliveries during 1989-1992, and 1993-1996, It ranked first in arms deliveries during 1996-1999, although it ranked third in terms of new orders – behind the UAE and India and only marginally above Egypt.¹⁴

It is not easy to make an accurate analysis of Saudi arms buys. Saudi Arabia does not provide statistics on its military imports, and most outside estimates are of limited analytic reliability. Two useful sources of unclassified intelligence estimates are, however, available from the US government: The Bureau of Arms Control in the US State Department (formerly the Arms Control and Disarmament Agency (ACDA), and the Congressional Research Service. These estimates are based on unclassified intelligence data that make a detailed effort to include all weapons and produce comparable estimates.

These sources provide a more reliable picture than academic and non-governmental organization (NGO) estimates of arms sales. They are certainly accurate in reflecting the steady increase in Saudi arms imports that has taken place in reaction to the massive build-up of Iraqi and Iranian forces, the threats and uncertainties posed by the Iran-Iraq War, the cost of fighting the Gulf War, and other current threats.¹⁵

The Impact of the Gulf War

Saudi Arabia took delivery on \$48.1 billion worth of arms during 1983-1989, and purchased 14.1% of all Third World military import agreements during 1982-1989.¹⁶ The Gulf War did, however, lead Saudi Arabia to make major additional purchases of military imports. Saudi Arabia ordered \$18.6 billion worth of military imports in 1990, and took delivery on \$6.749 billion worth. Saudi Arabia cut its new orders to \$7.8 billion in 1991, but deliveries rose to \$7.1 billion as its backlog of increased orders began to raise deliveries. Both new orders and deliveries dropped to \$4.5 billion in 1992. Saudi military imports then began to rise again because of the perceived threat from Iran and Iraq. Saudi Arabia ordered \$9.6 billion worth of arms in 1993, and took delivery on \$6.4 billion. In 1994, it ordered \$9.5 billion worth of military imports and took delivery on \$5.2 billion.

The end result of these orders was a bill that strained Saudi Arabia's financial capabilities at a time its oil revenues were declining, and a massive "pipeline" of ongoing arms deliveries that Saudi Arabia could not effectively absorb. The Kingdom had problems with meeting its payment schedules for several ongoing arms deals. Saudi Arabia had signed a multi-stage deal with Britain called Al-Yamamah that costs the Kingdom up to three billion dollars per year, but which was not integrated into its normal budget process. A similar agreement for the upgrade of the Saudi Navy, Sawari, was penned with France. While the Kingdom could meet some of its obligation with oil, these deals still imposed a major financial burden. The US had to be paid in cash, which imposed even more of a burden.

There were reasons to diversify the Kingdom's arms purchases. Saudi Arabia found it could not rely on the US because of US ties to Israel, and internal political pressure from Israel's supporters. It made sense for the Kingdom not to become too dependent on one supplier. Second, major arms purchases were a diplomatic tool in ensuring support from supplier nations. Finally, arms imports were a way of "recycling" oil export revenues and preserving market share. However, the Kingdom failed to pay proper attention to interoperability and standardization. Like most Gulf countries, it often focused on buying the most effective or advanced system, and paid little attention to the practical problems of integrating weapons from different suppliers into overall force structures that minimized the problems in operating systems designed by different countries, the

maintenance problems involved, and the difficulties in supplying and sustaining systems with different maintenance and ammunition needs in combat.

Aside from the National Guard, Saudi Arabia paid too little attention to the training burden involved, problems in combined arms and joint operations, and difficulties in command and control. It also underestimated the inevitable rivalry between foreign military advisory teams and the natural competitive bias of foreign contract support teams towards favoring systems made by their companies or countries. Saudi Arabia also underestimated the tendency of supplier countries to focus on sales per se and ignore the Kingdom's strategic interests, even though most supplier countries were dependent on the security of Saudi oil exports.

Excessive arms spending also led to a budget crisis in the mid-1990s. The Kingdom's problems in paying for its existing arms orders in 1994 led it to make much more modest new purchases after this time. The Kingdom ordered \$2.1 billion worth of arms in 1995, and took delivery on \$2.1 billion. New orders totaled \$1.9 billion in 1996, and deliveries totaled \$6.3 billion. Saudi Arabia placed \$2.7 billion in new orders in 1997, and took \$11.0 billion worth of deliveries.¹⁷

The "oil crash" in late 1997 then reinforced the need for Saudi Arabia to limit its new arms imports. As a result, it placed \$2.9 billion in new orders in 1998, and took \$8.7 billion worth of deliveries, and placed \$1.6 billion in new orders in 1999, and took \$6.9 billion worth of deliveries.¹⁸ The scale of the decline in new Saudi arms import agreements is indicated by the fact that new orders during 1991-1994 were only about two-thirds of the total during 1987-1990. Saudi new orders for the four-year period from 1994-1997 were substantially less than half the new orders Saudi Arabia placed during the four-year period before the Gulf War, even measured in current dollars.¹⁹

Nevertheless, the way the Kingdom managed new Saudi arms orders after 1995 was poorly managed, and reinforced several major problems in Saudi military sustainment and modernization.

- First, the Kingdom focused on major new arms purchases during the period immediately after the Gulf War, rather than sustainment and then did not shift its purchases to focus on sustainment when it had to make major cutbacks after the mid-1990s. As a result, Saudi Arabia was flooded with weapons but seriously under funded in terms of the investment in maintenance and sustainment that was necessary to keep its existing weapons effective and properly absorb its new ones.
- Second, the flood of new deliveries during the 1990s added to the Kingdom's problems in effectively recapitalizing and maintaining its overall force posture. As a rough rule of thumb every major weapons system costs at least as much in terms of the arms imports needed to maintain and upgrade it during its life cycle as it does to buy, and often twice as much. The Kingdom now faces a major future cost problem in making and in keeping its new weapons effective that will add to the problem of sustaining its existing weapons. While no precise figures are available, some US advisors estimate that the Kingdom needed to restructure its arms import program to focus on sustainment half a decade ago, and needs to spend three to four times more on support equipment, training systems, etc. than it does today, even if this means major additional cuts in spending on new arms.

- Third, the Kingdom never really developed a clear strategy for both improving interoperability and setting affordable long-term force goals. It went from year to year, solving its payments problems as they occurred. It did not develop effective future year plans and the spending fixes it adopted for any one year tended to compound its overall problems in standardization and interoperability.

The patterns since Saudi Arabia's funding crunch in the mid-1990s have been different. Saudi Arabia signed only \$6.6 billion worth of new agreements during 1995-1998, and \$4.1 billion worth of new agreements during 1999-2003, versus \$45.7 billion worth during 1985-1990 and \$30.2 billion worth during 1990-1994. In sharp contrast, Saudi Arabia took delivery on \$38.0 billion worth of military goods during 1995-1998, and \$26.6 billion during 1999-2002 (which compares with deliveries of \$26.3 billion during 1985-1989 and \$27.9 billion during 1990-1994.²⁰

These trends are easing the strain Saudi arms imports put on the Saudi national budget and the Saudi economy, but they also show that Saudi Arabia faces serious future problems because it is undercapitalizing its force structure. There also are major uncertainties affecting Saudi Arabia's future modernization of its armored forces. While the Kingdom continues to discuss buying two types of advanced modern tanks, the Saudi Army cannot yet effectively operate its present mix of M-60s and M-1s, and its French-made AMX-30s are obsolete and many are in storage. It needs to rationalize its mix of other armored vehicles more than it needs new ones. As is the cases with its other regular services, it needs to emphasize training and sustainment purchases over new weapons. The army does, however, need more long-range, self-propelled artillery firepower and advanced anti-tank weapons of the kind that can best help Saudi ground forces defend its long borders – which include a borders with Yemen and Iraq that are exceptionally difficult to secure against infiltration and smuggling.

The past modernization of the Saudi air and air defense forces has been overambitious, as has the modernization of Saudi Arabia's land-based air defense forces. It has created what is still a relatively modern air force, and Saudi Arabia continues to buy new systems. For example, it has upgraded its five E-3A AWACS, and taken delivery on a total of 12 AB-412TP search and rescue helicopters. At the same time, Saudi Arabia under funded the support of its F-15 force to the point where its readiness is seriously undermined. It has had to ground its aging F-5s. As a result, it is considering selling them, and buying a much smaller number of F-15s to compensate for its losses in training.

Saudi Arabia's main requirement for its air defense forces is the need to fund theater ballistic missile defenses at some point in the 2000s. The Kingdom has obtained shared early warning systems with the US, but US Patriots are the only system with anti-missile capabilities currently in Saudi Arabia. The anti-ballistic missile systems Saudi Arabia would need to deal with more advanced Iranian missiles are not yet available from the US and are not funded through its projections of its military expenditures.

Saudi Arabia plans only a limited naval modernization program once it takes delivery on the three French Lafayette-class frigates in 2001-2005 that it ordered during the 1990s. Some officers still want to buy submarines, although it is far from clear that the Navy can afford to buy and sustain them. Others would like to shift the Navy's modernization

priorities to areas like mine warfare and to concentrate on filling in the gaps in US Navy mission capabilities in the Gulf. This is an important change. Past Saudi naval imports often reflected more interest in prestige and in the “glitter factor” of having the best-armed large ships than in Saudi Arabia’s mission priorities or real-world military effectiveness.

These issues highlight the problems caused by the fact that while the Saudi National Guard has modernized slowly and has kept its arms imports in balance with its readiness and ability to absorb them, the quality of programming, planning, and budgeting within the Ministry of Defense and Aviation (MODA) is poor. The modernization planning and spending within the regular Saudi forces lacks coherent central direction and tends to lurch from year-to-year, and from major deal to major deal, rather than be part of a coherent future year plan and program budget. Once again, Force modernization tends to focus on major weapons buys without coherent plans to provide suitable support, training, and sustainment. While Saudi Arabia has long had reasonably well-drafted five year plans in its civil sector, the MODA is decades behind in practical planning skills, and it is uncertain that it has the practical authority to implement coherent plans even if they are drafted.

Corruption, Waste, and Accountability

The lack of transparency and accountability is a major problem in Saudi arms buys, as is the tendency to create very large contract programs that become open-ended purchasing programs. At least some Saudi officials and officers feel that it is virtually impossible for anyone in the Saudi government, whether inside or outside the Ministry of Defense and Aviation to understand what is being bought in any detail, who is getting the money, and how the flow of Saudi payments is being accounted for. These problems are compounded by layering service and support contracts in purchasing contracts over procurement contracts, accounting for the cost-benefits of grossly over-ambitious offset contracts, and accounting for soft expenditures like transportation and overhead costs.

Outside critics have often exaggerated the level of waste and corruption in Saudi arms deals and military procurement. The following sections show that the Kingdom has generally bought the right arms and got a highly effective mix of weapons for its money. As will be discussed later, the terms of US Foreign Military Sales (FMS) programs also places serious limits on the misuse of funds. In addition, European countries maintain audit programs that help to limit such problems.

The fact remains, however, that even relatively limited waste and corruption still involve major amounts of money – given the massive size of Saudi arms purchases. Furthermore, some very large Saudi arms deals like the Al-Yamamah program that started out as an integrated purchase of weapons and services from Britain were structured in ways which involved complex old deals and which led to charges about massive waste and corruption from the start. They have since been expanded to include buys from France and have layered new purchases on old in ways that have made accountability impossible. The original Al-Yamamah program was signed in the mid-1980s, and then expanded to levels costing over \$30-\$35 billion, with off-budget outlays of roughly \$3 billion a year, and additional accountability problems caused by including the barter of oil for weapons and

complex offset arrangements. Further spending has taken place since 2001 in ways that have led to new charges of waste and corruption.

Saudi Arabia is scarcely unique in keeping virtually all of the military, technical, and financial and management aspects of its arms deals secret. Virtually every country in the developing world does so, and the details of procurement and service contracts of many Western states are almost impossible for outsiders to obtain. The fact is, however, that virtually every war fighting aspect of such contracts soon become public. There is no military or strategic reason for classifying the cost and structure of arms deals. In fact, there is even less reason to classify them than the total defense budget. The actual flow of arms and munitions is so public that attempts at secrecy are futile.

This strongly argues for several reforms in Saudi arms purchases and offset programs. First, for maximum transparency and public exposure of the financial details of contracts and purchase arrangements to encourage public review and trust. Second, for annual public reporting on contract performance and the individual performance of offset programs. Third, for the creation of a major new independent audit function within the Ministry of Defense and Aviation, with investigative accounting responsibility, to review such programs. Fourth, for the creation of a body similar to the US General Accounting Office under the King to conduct such audits in the case of suspect or troubled programs. And finally, for the inclusion of detailed procurement data in the kind of public defense program and budget discussed earlier.

The Military Forces of Saudi Arabia

The Saudi armed forces now dominate the Southern Gulf forces. The regular forces now total some 150,000 men, plus some 95,000 – 100,000 actives in the National Guard, and another 20,000 men in various paramilitary forces: Some 15,000 in the Border Guard, 7,500 in the Coast Guard, and some 1,500 in a special security force. These totals do not include massive additional internal security, intelligence, and police forces in the Ministry of the Interior.

Saudi forces must now deal with two significant potential threats -- Iran and Yemen -- and must still deploy forces to cover its border with Jordan and Syria. It must defend a territory roughly the size of the US east of the Mississippi, and this mix of potential threats means that the Saudi Army cannot normally concentrate its forces to meet a single threat and must disperse its forces over much of the Kingdom. Saudi Arabia has, however, reached a full border settlement with Yemen, no longer is threatened by Iraq, and has established good diplomatic relations with Iran. As a result, the primary threat it now faces comes from internal Islamic extremists, which have been a growing problem since the Gulf War, and which became far more violent in 2003.

Saudi Arabia faces a major threat from both al Qaida and independent extremist groups. It also has experienced increasing tension with the US over the fact 15 Saudis were involved in the terrorist attack on the US on September 11, 2001, because of a US response that often seemed harshly anti-Saudi, and because Saudi Arabia feels the US has often uncritically backed Israel in the Israel-Palestinian War. Saudi Arabia cooperated closely with the US and Britain during the Iraq War, providing extensive basing facilities and other support, but did so as quietly as possible. It also did so with the agreement that the active US Air Force combat forces, and Patriot units, based near Riyadh would leave

the country after the war, which they did in the summer of 2003. A major US military assistance mission still operates in Saudi Arabia, and the US and Britain would certainly support Saudi Arabia in dealing with any threat from Iran or Yemen. Saudi Arabia and the US also now cooperate far more closely in the war on terrorism. Nevertheless, Saudi Arabia's military relations with the US are substantially less close than in the early 1990s.

Like most MENA states, Saudi Arabia faces major problems because of massive population growth and a failure to diversify its economy. Saudi Arabia now has a population of nearly 23 million. Its real per capita oil income dropped to \$2,296 per person in 2002, versus \$23,820 in 1980, in constant dollars. Saudi Arabia still has vast oil wealth, and had extremely high oil export earnings in 2003 and the first two quarters of 2004, giving it its first major budget surplus in recent years. It still, however, faces major problems in reforming its economy, already has official levels of unemployment approach 12% and disguised levels of unemployment in excess of 20%, and faces a "youth explosion" that will double the number of young men and women entering its labor force over the next two decades.

In spite of its recent high oil export earnings, Saudi Arabia has growing problems in funding both its normal civil expenditures, and the longer-term investments it must make in infrastructure, energy export capabilities, and economic growth and reform. Military expenditures are a major burden on the Saudi economy, and Saudi Arabia has had to cut back significantly on its new arms orders. It still, however, continues to import significant combat equipment, including new ships, LAVs, helicopters, and munitions. Reportedly, the country is close to signing a massive contract to provide vastly increased border surveillance in an effort to restrict possible infiltration by terrorists.²¹ Saudi Arabia has allocated more than \$18 billion in its budget to be spent on defense each year until at least 2007.²²

The Saudi Army

The Saudi Army has about 100,000 actives, an inventory of 1,055 medium tanks on-hand or in delivery, plus over 3,000 other armored vehicles, and 500 major artillery weapons. It is headquartered in Riyadh, and has five staff branches: G1 Personnel, G2 Intelligence and Security, GS Operations and Training, G4 Logistics, and G5 Civil and Military Affairs. It also has field commands organized into eight zones under Military Zone Commanders.

The combat strength of the Saudi Army consists of three armored brigades, five mechanized infantry brigades, one airborne brigade, and one Royal Guards regiment. It also had five independent artillery brigades and an aviation command. The Saudi Army deployed the 12th Armored Brigade and 6th Mechanized Brigade at King Faisal Military City in the Tabuk area. It deployed the 4th Armored Brigade, and 11th Mechanized Brigade at King Abdul Aziz Military City in the Khamis Mushayt area. It deployed the 20th Mechanized Brigade and 8th Mechanized Brigade at King Khalid Military City near Hafr al Batin. The 10th Mechanized Brigade is deployed at Sharawrah, which is near the border with Yemen and about 150 kilometers from Zamak.

A typical Saudi armored brigade has an armored reconnaissance company, three tank battalions with 42 tanks each, two tank companies with a total of 30 tanks, three tank

troops with a total of 12 tanks, a mechanized infantry battalion with 54 AIFVs/ APCs, and an artillery battalion with 18 self-propelled guns. It also has an army aviation company, an engineer company, a logistic battalion, a field workshop, and a medical company. A typical Saudi mechanized brigade has an armored reconnaissance company, one tank battalion with 37-42, three mechanized infantry battalions with 54 AIFVs/APCs each, two infantry companies with a total of 33 APCs, three infantry platoons with a total of 12 APCs, and an artillery battalion with 18 self-propelled guns. It also has an army aviation company, an engineer company, a logistic battalion, a field workshop, and a medical company. It has 24 anti-tank guided weapons launchers and four mortar sections with a total of eight 81mm mortars.

The Airborne Brigade and Royal Guard Brigade are normally deployed near Riyadh. The Airborne Brigade has two parachute battalions and three Special Forces companies. The Special Forces companies report directly to Prince Sultan. The Royal Guard Brigade has three battalions, and is equipped with light armored vehicles. It reports directly to the King and is recruited from loyal tribes in the Najd. The Army also has an Army Aviation Command, which was formed in 1986, and that operated Saudi Arabia's Bell 406 armed helicopters and AH-64s. There also were security garrisons at most major Saudi cities, including Dhahran, Jeddah, and Riyadh.

This is an impressive order of battle but the Saudi Army only has around 100,000 full time actives for a force structure and equipment holdings that requires up to twice as many men. This level of manpower is adequate to man about two US division "slices," with minimal manning for combat, combat support, and service support units. In the US Army, it could support a total force with a maximum of around 600 tanks and 1,000 other armored vehicles. In practice, however, the Saudi Army's manpower must be divided into force structure that has an order of battle equivalent to around three heavy divisions, and with an equipment pool at least that size. This requires more manpower than Saudi Arabia has available.

The Saudi Army's problems in expansion, planning, manpower, organization, and deployment have been compounded by the need to absorb the massive equipment build-up that took place before and after the Gulf War. The Army faces the need to operate a complex mix of equipment supplied by many nations, and then be able to operate effectively with the equipment mixes in the forces of regional allies, the USA, and Britain. The diversification of the Saudi Army's sources of army equipment has reduced its dependence on the United States, but it has also increased its training and support burden, and has raised its operations and maintenance costs.

Saudi Arabia has also made some purchases of army equipment from its major oil customers that do not serve the Army's needs. Saudi Arabia still operates three types of tanks and five different types of major armored fighting vehicles and armored personnel carriers, with an inventory of more than 20 subtypes. It has major artillery holdings from five different countries, anti-tank weapons from four, and helicopters from two. This equipment is broadly interoperable, but each additional type increases the Army's training and sustainability problems.

Saudi Arabia's unique weather, terrain, and desert warfare conditions create special demands in terms of support and sustainability. Much of the equipment the Saudi Army

has purchased has required modification, or extensive changes to its original technical and logistic support plan, before it could be operated in large numbers. As a result, most new systems present major servicing and support problems, and will continue to do so until new maintenance procedures are adopted and modifications are made to failure-prone components. These problems will increase strikingly the moment the Saudi Army is forced to operate away from its bases, conduct sustained maneuvers, and deal with combat damage.

Contractor support is not a substitute for uniformed Saudi combat support and service support capabilities that can deploy and fight in the field, and the Saudi Army's standardization and interoperability problems are compounded by the need to support equipment in remote and widely dispersed locations. The Saudi Army has tried to reduce such problems by creating an advanced logistic system, but some experts feel this effort has been overly ambitious and has lacked proper advisory management.

Fortunately, Saudi equipment numbers are more than adequate now that Iraq has ceased to be a threat. Saudi Arabia has an inventory of 1,055 main battle tanks and more than 300 tank transporters. Its tanks included 315 M-1A2s, 450 M-60A3s, and 290 French-made AMX-30s. About half of the AMX-30s were in storage, however, and only about 700-765 of Saudi Arabia's main battle tanks were operational. Saudi Arabia was also experiencing major problems in converting to the M-1A1 tanks and this left it with a core strength of around 380 well-manned M-60A3s, about 100-175 M-1A2s that were combat ready with good crew proficiency, and a residual force of around 160-170 AMX-30s.

Saudi Arabia has a large inventory of other mechanized armored equipment. It has roughly 2,600 armored vehicles in addition to its tanks (300 reconnaissance, 970 armored infantry fighting vehicles, and 1,900 armored personnel carriers), and has a ratio of about 27 actives per other armored vehicle. In contrast, Iran has 1,455 other armored vehicles for 325,000 actives (450,000 if the Revolutionary Guards are included), and Iraq has about 2,700 for 375,000 men. These comparisons are shown in more detail in Charts 4.10 to 4.13. The Saudi Army also has large numbers of French and US-made armored recovery vehicles, armored bridging units, and large numbers of special purpose armored vehicles

It is not possible to separate all of the Saudi Army's holdings of other armored vehicles (OAFVs) from those of the National Guard, Border Guard, and other paramilitary forces. As of early 2002, however, the Saudi Army's holdings of armored infantry fighting and command vehicles seem to have included 400 M-2A2 Bradleys, 150 M-577A1s, and 570 AMX-10Ps. It had 300-330 AML-60, AML-90, and AML-245 reconnaissance vehicles, of which roughly 235 remained in active service.

The Saudi Army had 1,750 variants of the M-113, including 950-850 M-113A1s and M-113A2s. Saudi Arabia had 250 to 300 armored mortar carriers, including M-106A1s and M-125s. It also had 30 EE-11 Brazilian Urutus, 110 German UR-416s, 120 Spanish BMR-600s and 270-290 Panhard M-3/VTT armored personnel carriers in inventory, but only 150 Panhard M-3s, however, remained in active service.

It is obvious from these totals that the Saudi Army's holdings of OAFVs include enough US-supplied equipment to provide reasonable levels of standardization for all of the Saudi army's full-time active manpower, as well as a high degree of interoperability with

US forces. At the same time, the Saudi Army's total inventory of such weapons still includes far too many types of weapons bought from far too many suppliers over the years. It presents serious problems in operability, standardization and modernization. Many types are highly specialized and difficult to properly integrate into Saudi forces in small numbers. Some purchases are also the result of political efforts to give foreign suppliers a share of the Saudi market, regardless of military need. The end result is that the Saudi Army has so many different types of other armored vehicles that many are no longer in active service – or even useful as spare parts – and even the equipment which is active is still so diverse that it presents training, maintenance, logistic, maneuver, and readiness problems.

The Saudi Army has a good mix of small arms, light weaponry, and anti-tank weapons. These include massive stocks of mobile, crew-portable, and man-portable TOW, HOT, and Dragon anti-tank guided missiles. Saudi Arabia has a total of some 950 TOW launchers with some 200 TOW launchers mounted on VCC-1 armored fighting vehicles, and an additional 300 mounted on M-113A1s or other US supplied armored vehicles. It had 100 HOT launchers and 90 HOT launchers mounted on AMX-10P armored fighting vehicles. The Army also has large numbers of TOW crew-portable and roughly 1,000 Dragon man-portable anti-tank guided weapons systems.

It also has 300 Carl Gustav rocket launchers, 400 M-20 3.5" rocket launchers, thousands of M-72 LAWs, and extensive numbers of 75mm, 84mm, 90mm (100) and 106mm (300) rocket launchers and recoilless rifles. Unlike the older anti-tank guided weapons in some Gulf armies, the Saudi Army TOW-2A missiles can kill T-72A, T-72M1, T-80 and other modern tanks.

The Saudi Army has large numbers of modern artillery weapons. The Saudi Army inventory includes 60-70 Astros II multiple rocket launchers, and 110-120 M-109A1/A2 and 90 GCT 155 mm self-propelled howitzers.²³ The Army had 24 Model 56 and 90-100 M-101/M-102 105mm towed howitzers, and 40 FH-70 105mm towed howitzers, in storage. It had 40 M-198 and 50 M-114 155mm towed howitzers in service and 5-10 M-115 203mm towed howitzers and some other older towed weapons in storage. Its total mortar strength included over 400 120 mm and 4.2" weapons, over 1,000 81mm weapons, and large numbers of light 60mm weapons. It had 70 81mm, and 150 M-30 4.2" mortars on M-106 and M-125A1 armored vehicles, and roughly 200 81mm-120mm towed mortars.

Many Saudi artillery units, however, lack key targeting, command and control, and battle management capabilities and suffer from manpower quality, mobility, and support problems. Training is poor, and many units only shoot in serious training exercises every 1 1/2 years. The Saudi Army needs more and better ballistic computers, mobile fire control and ammunition-supply equipment, and desperately needs new target acquisition radars -- such as the AN/PPS-15A, MSTAR, or Rasit 3190B. It also needs a modern and fully integrated mix of counter battery radars and fire control systems to rapidly mass and shift fires.

The Saudi Army has limited-to-moderate 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. Unless the Kingdom takes combined arms and

maneuver warfare far more seriously in the future than it has to date, Saudi artillery units will continue to seriously degrade the overall war fighting and defense capabilities of Saudi land forces.

Saudi Arabia has relatively large numbers of modern air defense weapons by Gulf standards. It is not easy to separate the Saudi Army's air defense assets from those in the Saudi Air Defense Force, and sources disagree over which force operates given systems. However, the Saudi Army seems to have had 17 anti-aircraft artillery batteries, and is organized and equipped to protect its maneuver forces in combat. Total Saudi holdings of short-range air defenses include 73 Crotale (Shahine) radar guided missiles on tracked armored vehicles and 19 shelter-mounted firing units, 36 AMX-30 self-propelled and 10 shelter-mounted Shahine acquisition units. Saudi Arabia also had large holdings of man-portable surface-to-air missiles. Its holdings included 700 Mistral, some 200-500 Stingers (reporting on numbers is unusually uncertain), and 570 obsolescent Redeye man portable surface-to-air missiles. Saudi Arabia may have an unknown number of Kolomna KBM Iгла (SA-16 Gimlet) weapons. Saudi Arabia bought 50 Stinger launchers and 200 Stinger missiles on an emergency basis in August 1990, and ordered additional Crotales and 700 French Mistral launchers and 1,500 missiles.

It is equally difficult to separate the Army's air defense gun holdings from those of the National Guard, but Saudi Arabia's total holdings of light anti-aircraft weapons seems to include 10 M-42 40mm, and 92 Vulcan M-163 20mm anti-aircraft guns. It also seems to have 150 Bofors L-60/L-70 40mm and 128 Oerlikon 35mm towed guns, and possibly 15 M-117 90mm towed anti-aircraft guns.

This is a reasonable mix of air defense assets, but training and readiness levels are moderate to low. The separate Saudi Air Defense Force -- which controls Saudi Arabia heavy surface-to-air missiles and fixed air defenses -- is also a relatively static force that cannot easily support the army in mobile operations. The Army's air defense units also consist largely of independent fire units, rather than an integrated system of netted C⁴I/BM capabilities, although such capabilities are planned.

Saudi Army helicopter forces are important areas for future force improvement. Much of the Saudi Army is now deployed at least 500 miles from the Kingdom's main oil facilities in the Eastern Province, although a brigade is stationed in the new King Fahd military city in the Eastern Province, and combat elements of another brigade are 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 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 provide rapid concentration of force and allow Saudi Arabia to make up for its lack of experience in large-scale maneuver. These factors first led the Saudi Army to seek attack helicopters in the early 1980s.

Saudi Arabia initially experienced political problems in obtaining such helicopters from the US, and this led the Saudi Army to obtain an option to buy 88 Sikorsky-designed S-70 Blackhawk helicopters from Westland in Britain. Roughly 80 of these Westlands were to be attack helicopters equipped with TOW-2. The rest were to be configured for SAR missions. The order was divided into batches of 40 and 48 aircraft. The Gulf War

changed this situation and created the political conditions in which Saudi Arabia could buy the AH-64 from the US. Saudi Arabia ordered 12 AH-64 Apache attack helicopters, 155 Hellfire missiles, 24 spare Hellfire launchers, six spare engines and associated equipment from the US.

The AH-64s began to enter Saudi service in 1993, and the Saudi Army now has a helicopter strength that includes 12 AH-64 attack helicopters, 15 Bell 406CS armed helicopters, 12 S-70A1 Sikorsky Blackhawk transport helicopters, six SA-365N medical evacuation helicopters, and 10 UL-60 Blackhawk medical evacuation and 12 UH-60 transport helicopters. The Saudi Army has had maintenance problems with its helicopter fleet, although standards seem to be much higher than in Iran and Iraq. It also tends to use helicopters more for service and medical evacuation functions than to achieve tactical mobility. This again presents problems in compensating for the dispersal of the Saudi Army and in deploying forward defenses.

The Saudi Army has the facilities, infrastructure, and equipment to support its forces in peacetime and some of its ongoing construction of facilities near Yemen may prove to be superfluous because of the improvement in Saudi-Yemeni relations. The Army has excellent support facilities, although it has progressively under funded logistic and support vehicles and equipment since the mid-1990s. Nevertheless, the Saudi Army 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 US on September 27, 1990, including 1,200 High Mobility Multipurpose Wheeled Vehicles (HMMWVs). The Saudi Army still has extensive foreign support in spite of cutbacks in foreign manpower and support contracts.

The Saudi Army has not, however, created the sustainment and support capabilities necessary to support mobile combat operations in the field. While it made progress towards converting to maneuver warfare during the Gulf War, it then reverted to a largely static and caserne-oriented pattern of peacetime behavior, and it has failed to give sustainability the same priority as firepower and mobility. The lack of standardization within the Saudi Army adds to these problems, as does excessive dependence on base facilities and foreign civilian support. So does the lack of progress in these areas in the rest of the Southern Gulf, and the lack of an effective and integrated organization for the defense of Kuwait and the Saudi border with Iraq. There are exceptions like attack helicopters and long-range artillery, but the Saudi Army needs the specialized training, organization, and manpower necessary to improve its support structure, and ability to sustain its existing forces in combat, far more than it needs more weapons.

The Saudi Army showed during the Gulf War that it could fight well against Iraqi armored forces, and the kind of threats it faces in the Gulf region. Nevertheless, the previous analysis has shown that the Saudi Army faces continuing problems in many areas. It does not have the manpower and training necessary to operate all of its new major equipment orders properly. It is also still an army that normally operates near its peacetime casernes, and which will experience serious problems in redeploying its major combat forces unless it has extensive strategic warning.

While Saudi Arabia can move a brigade set of armor relatively rapidly, it would take the Saudi Army a minimum of 7-10 days to redeploy a combat sustainable brigade to a new

front. The Saudi Army does not have a single combat brigade that is now truly combat ready in terms of the ability to rapidly deploy at full strength and then sustain operations at any distance from its peacetime casernes. Every brigade has shortfalls in its active combined arms strength, usually in artillery and mechanized elements, or both. Every brigade is short with some elements of combat and service support capability.

These are issues the Saudi Army must now address in the light of the fact Iraq has ceased to be a threat. It should be possible to consolidate Saudi forces around the mission of defending against any incursions by Iran or Yemen, cut major equipment purchases and eliminate older and less capable equipment, and stress training and readiness. The Saudi Army also needs to focus on developing more light and heavily mobile forces, and on creating special forces and counterterrorism units.

The Saudi National Guard

Saudi Arabia divides its land force manpower between the Army and the Saudi Arabian National Guard (SANG). The National Guard is the successor of the Ikhwan or White Army. It is a tribal force forged out of those tribal elements loyal to the Saud family. It was created in 1956, and was originally administered directly by the king until King Faisal appointed the current Crown Prince Abdullah its commander in 1962. A year later, Crown Prince Abdullah requested a British Military Mission to help modernize the Guard. Since the late 1970s, however, the US-Saudi Arabian National Guard Program (SANG) and US contractors have provided most of the SANG's advisory functions.²⁴

The National Guard is sometimes viewed as a counterweight to the regular military forces. Over time, it has become a steadily more effective internal security force, as well as a force that can provide rear area security for the Army and can help defend the major urban areas and critical petroleum infrastructure. The five major current missions of the Guard are:

- Maintain security and stability within the Kingdom,
- Defend vital facilities (religious sites, oil fields),
- Provide security and a screening force for the Kingdom's borders.
- Provide a combat ready internal security force for operations throughout the Kingdom.
- Provide security for Crown Prince Abdullah and the senior members of the royal family.

Estimates of the current full time strength of the National Guard differ sharply. The IISS reports it has 75,000 actives, and 25,000 tribal levies in 2000. A senior US expert quoted a strength of 105,000 in February 2001. Our estimates put the range at 100,000 actives and 30,000 tribal levies. Regardless of the exact numbers, it is clear that the Guard is now far larger than it was at the time of the Gulf War, and that it has a full-time active strength approaching that of the Saudi Army.

The Guard is organized into four mechanized brigades with a fifth forming. These brigades had modern Light Armored Vehicles (LAVs), and each brigade had some 800 men each and some 360 vehicles. There were also five light infantry brigades, equipped primarily with V-150s. These forces were deployed so that there were two mechanized brigades, and another forming, near Riyadh, plus one light infantry brigade. The Western Sector had three light infantry brigades, and the Eastern sector has one mechanized and one light infantry brigade.

The Guard does not have a complex or sophisticated mix of equipment, but has chosen to standardize on some of the best wheeled armored weapons available. The Guard's forces operational forces are equipped with about 1,117 LAV light armored vehicles in its mechanized units. According to the IISS, these include 394 LAV-25s, 184 LAV-Cps, 130 LAV-Ags, 111 LAV-AT, 73 LAV-Ms, 47 LAV, plus 190 LAV support vehicles. It also has 290 V-150 Commando armored vehicles in active service in its light infantry forces, plus 810 more V-150s in storage. The Guard prefers wheeled vehicles because of their superior speed, endurance, and ease of maintenance. The Guard also had a significant number of towed artillery weapons.

The Guard is in the midst of a major modernization campaign. Saudi Arabia recently agreed to a contract that could total over \$900 million to supply the Guard with replacement parts for its LAVs and APCs, as well as additional vehicles, artillery pieces, and training. The goal is for the Guard to become a modernized, 100,000-man force.

The major problem with the National Guard is that it must now adapt to more demanding security missions, to counter terrorism, and internal security operations on a far more demanding level in the past. The defeat of Iraq means there is little point in building up the Guard as a supplement to the regular army. At the same time, the growth of a serious terrorist threat, the critical importance of Saudi petroleum facilities and civil infrastructure, and the problem of securing the Yemeni border create a clear set of new and more demanding mission priorities for the Guard.

The Saudi Navy

The Saudi Navy has slowly improved its readiness and effectiveness, but still has major problems. Only its fleet on the Gulf coast, however, is regarded as making significant progress as a war fighting force. Its force on the Red Sea is seen more as a symbol than a warfighting force. Joint warfare capabilities are limited, and the Navy is not integrated into either a GGC or Saudi-US-UK concept of operations. It must also restructure its plans and capabilities to focus on Iran, now that Iraq has ceased to be a threat, and on defense of the Red Sea.

The Saudi Navy has a nominal strength of 15,500 men including 3,000 Marines. It is headquartered in Riyadh and has major bases in Jeddah, Jizan, Al Wajh in the Red Sea, and in Jubail, Dammam, Ras al Mishab, and Ras al Ghar in the Gulf. Its combat strength includes four Madina-class (F-2000) frigates, three Arriyad-class (F-3000S) guided-missile frigates (JDW 7 August 2002 p. 16 labeled 49), four Badr-class missile corvettes, and nine Al Siddiq-class guided missile ships. It includes 3 Dammam-class (German Jaguar) torpedo boats, 20 Naja 12 inshore fast craft, 17 Halter-type coastal patrol craft (some in the Coast Guard), and three Al Jawf (British Sandown) and four Safwa (Addriyah)-class (ex-US MSC-322 Bluebird) mine warfare ships. The Sawari-IIs are to be fitted with Oto Melara stealth 76/62 guns.²⁵

It has four Afif-class LCU amphibious craft, 4 LCMs, two other amphibious craft, 2 10,500-ton Boraida-class (French Durance) support ships, 4 smaller support vessels, 14 tug boats, and large numbers of small patrol boats including 40 Simmoneau Type 51 inshore patrol boats. Auxiliary ships included 3 Radhwa-class ocean-going tugs, 3 Radhwa-class coastal tugs, 2 Buraida-class replenishment oilers (French Durance-class), 1 Al Riyadh royal yacht, and the Al Azizah hydrofoil yacht tender. The royal yachts are based at Dammam. Saudi Arabia is considering acquiring up to four diesel-electric submarines. Reportedly, the Saudis are looking into the Swedish Kockums Type 471, the German IKL 200, and an undetermined French submarine.²⁶

The 3,000-man Saudi marine forces are organized into one regiment with two battalions. It initially was equipped with 140 BTR-60Ps. It is now equipped with 140 Spanish Santa Barbara SBB BMR-600 6x6 amphibious APCs. It seems to have received nearly 100 Al Fahd 8x8 Armored personnel carriers during 2001.

Saudi naval aviation is based at Al Jubail. Various sources report different holdings for Saudi naval aviation. It seems to have included 15 operational SA-565F Dauphin ASW and anti-ship missile helicopters with AS-15TT missiles, and four SA-565s equipped for the search and rescue mission. The SA-365Fs have only limited ASW capability, and are configured primarily for the surface search and attack roles. Each combat-equipped SA-365F carries four missiles and has an Agrion search/attack system. They have Crouzet MAD systems and can carry two Mark 46 torpedoes. The Saudi Navy also has 3 Westland Sea King Mark 47 ASW helicopters, and 12-21 land-based AS-332SC(B/F) Super Puma helicopters. Some reports indicate the AS-332s included 12 aircraft with Omera search radars, nine with Giat 20mm cannon, and 12 with Exocet or Sea Eagle air-to-ship missiles. Other reports indicate the AS-332s included only six transport aircraft, plus another six with Exocet air-to-ship missiles. The Saudis are pursuing the sale of ten

NH 90 helicopters with anti-submarine warfare capabilities for the new Arriyad-class frigates.²⁷

The Saudi Coast Guard has up to 7,500 men and has its main base at Azizam. Its equipment includes two large Yarmouk-class patrol boats, two fast missile attack craft with AS-15TT missiles, four large Al-Jouf-class patrol boats, two large Al Jubatel-class patrol boats, 25 Skorpion-class patrol boats, 13 other coastal patrol boats and four SRN-6, Model 4 Hovercraft, 16 Slingsby SAH 2200 Hovercraft, large numbers of inshore patrol craft, three royal yachts, three small tankers, fire fighting craft, and three tugs. Its primary mission is anti-smuggling, but it does have an internal security mission as well.²⁸

The Saudi Air Force

The Saudi Air Force is the most advanced air force in the Middle East (excluding Israel), but it still has major defects. These defects include:

- An over-emphasis on air defense at the expense of offensive air capabilities, and particularly capabilities designed to deal with advancing Iraqi armor or the naval threat from Iran.
- A failure to develop effective joint warfare capabilities, realistic joint warfare training capabilities, and transform joint warfare doctrine in to effective war fighting plans to support the Army, National Guard, and Navy.
- A failure to develop a truly integrated air defense and war fighting capability with other Southern Gulf states.
- A failure to rapidly modernize the RSAF C⁴I/SR and battle management system and to develop high capacity secure communications, and to expand the role of sensor, electronic warfare, and intelligence aircraft to support offensive and joint warfare missions.
- A lack of overall readiness, and poor aircrew and maintenance to aircraft ratios, which has forced the near-grounding of its F5s, and has severely reduced the effectiveness of its F-15s and Tornados. Since 1994, the poor leadership of the air force, the mishandling of overall training and readiness, under funding, and poorly managed Saudisation, have brought readiness to the point of near-crisis and led to a severe increase in the Air Force's accident rate.
- A failure to modernize training to support realistic offensive and joint warfare missions.
- A decline in leadership since the Gulf War, and particularly in focusing the modernization of the RSAF on key missions. Slow promotion and turnover, coupled with corruption in the highest ranks, have compounded these problems.

The RSAF has about 20,000 men, not including another 16,000 men in the Air Defense Force. USCENTCOM estimates the Air Force's strength at a total of 16,500 men. According to one source, the RSAF's combat forces were organized into six wings with a total of 15 combat squadrons and about 259 operational first-line, fixed-wing combat aircraft, and 39 combat capable trainers. The IISS estimated that Saudi Arabia had a total inventory of about 432 combat aircraft with about 294 active combat aircraft. The Saudi

Army operates an additional force of 12 AH-64 attack helicopters, and the Navy has 21 more armed helicopters. These armed naval helicopters include 19 AS-56 helicopters, of which four are equipped for the search and rescue mission and 15 has AS-15TT anti ship missiles, six AS-332B transports, and six AS-332Bs equipped with Exocet anti-ship missiles.²⁹

Saudi Arabia's total inventory of major combat aircraft includes 72 F-15Ss, 67 F-15Cs, 20 F-15Ds, 85 Tornado IDSs (10 Tornado GR.1 recce-attack equipped), 22 Tornado ADVs, and 5 E-3A AWACS. Until recently, the RASF also had 56 F-5Es, 21 F-5Fs, 10 RF-5Es, and 14 F-5Bs. By early 2001, however, most of the F-5s were grounded and in storage. Only 14 F-5B still seem to be operational in a combat-capable training unit.³⁰

Combat aircraft strength includes four fighter-attack squadrons, three with 85 Tornado IDS, and one with 14 F-15B/F/RFs. In theory, there were still three squadrons with 53 F-5Es, but virtually all of these aircraft were grounded. The IDS squadrons had dual-capable trainer aircraft, and 10 had a dual-mission in the reconnaissance role. These squadrons were equipped with a wide range of attack munitions, including AS-15, AS-30, AGM-45 Shrike, and AGM-65 Maverick air-to-surface missiles and the Rockeye, Sea Eagle, and Alarm air-to-ground weapons. Saudi Arabia has MQM-74C Chukar II and Banshee remotely piloted vehicles for reconnaissance and target acquisition.

The Tornado squadrons provide much of the offensive strength of the Saudi Air Force, but are configured more for bombing against fixed targets than joint warfare or operations against armor. The Tornado does, however, have superior low altitude flight performance in attack missions to the F-15S, and was specifically designed to fly nap of the earth missions, while the F-15S is subject to buffeting because of its large wing area. The Tornado also has superior air-to-surface missile armament. It can deliver the ALARM anti-radiation missile and Sea Eagle anti-ship missile while the Saudi F-15S is currently limited to the Maverick, which only has a strike range of around 10 miles. Both aircraft can deliver laser-guided bombs and self-illuminate their targets.

The RSAF has nine interceptor squadrons for defensive missions. There were five squadrons with a total of 87 F-15C/Ds (67 F-15C and 20 F-15Ds), and more squadrons with 72 F-15Ss. F-15Ds were deployed to each F-15 squadron to perform both training and operational missions. There was one Tornado ADV squadron with 22 aircraft, which also included dual-capable trainer aircraft. Saudi fighters were equipped with modern air-to-air missiles, including AIM-9L and AIM-9P infrared guided missiles, AIM-7F Sparrow and Sky flash radar guided missiles. The RSAF is acquiring the AMRAAM air-to-air missile, which will give it substantial beyond visual range (BVR) all-weather air combat capability. Saudi F-15 fighter units are capable in the air defense role, but most aircrews now lack adequate advanced fighter combat training. The Tornado ADS has not proved to be an effective fighter except in a stand-off missile defense role and is being shifted to other missions.

During the mid and late 1990s, the training of Saudi aircrews became weak to the point where it presented serious safety problems in advanced mission profiles, and led to a number of fatal accidents. Saudi Arabia's remaining active F-5 units present particular problems. They have poor readiness and proficiency levels and their aircraft have little combat capability. This loss of the F-5E led Saudi Arabia to obtain US permission to

deploy some of its F-15s to Tabuk in western Saudi Arabia in 2003, although it had previously agreed not to do so because of Israel concerns over security. This deployment has little, if any, practical impact on Israel's security.

Saudi Arabia has been the only Southern Gulf air force with meaningful numbers of reconnaissance aircraft. Until recently, the RSAF had two aging reconnaissance squadrons with a total of 10 RF-5Es. These aircraft have reached obsolescence in terms of their sensors and survivability, however, and most are now dead lined or in storage. The 10 Tornado IDS-Rs in the fighter-ground attack force could probably perform most missions, and Saudi Arabia is acquiring reconnaissance and electronic warfare pods for its F-15s and has deployed some of this equipment.

The RSAF has an airborne early warning squadron with five E-3As. These aircraft now have Saudi crews, but the crews have shown only limited capability to manage complex air battles and the RSAF must rely on the USAF for help in such missions. The Saudi E-3As also lack adequate secure communications and data links, and need an upgrading of their software and improved electronic support measures. The remaining multipurpose squadron with 14 F-5Bs has both a training and a combat mission, but had little real operational capability. Most aircraft were "parked" and without real operational capability.

The RSAF has 25 armed Hawk Mark 65 jet trainers, and 20 armed Hawk Mark 65A jet trainers. Saudi holdings of 36 BAC-167 turboprop COIN and training aircraft were phased out of service in the late 1990s. The Hawk units were technically capable of performing COIN and light attack functions with machine guns, cannons, and rockets, as well as training missions but the combat mission training of the Hawk aircrews is limited. RSAF does not plan to use them in that role. The RSAF also had 13 Cessna 172s, one Jetstream, and 50 PC-9 aircraft in training units that were not armed for combat.

The RSAF is the only Gulf air force with an effective mid-air refueling capability. Its support units included a tanker squadron with 8 KE-3A tanker/transport, and 8 KC-130H tankers. It had three transport squadrons with 38 C-130 cargo-transport (7 E, 29 H, and 2 H-30), 1 KE-3B (EW), 3 L-100-30HS hospital aircraft, and 4 CN-235s. There were also two helicopter squadrons with 22 AB-205s, 13 AB-206s, 17 AB-212s, 40 AB-41EP (SAR) and 10 AS-532A2 (SAR). There AS-532A2 Cougar search and rescue helicopters were ordered from France in September 1996, at a cost of \$590 million.³¹ The Royal Flight provided substantial additional airlift assets, including 2 B-747SP, 1 B-737-200, 4 Bae 125-800, two Gulfstream III, 2 Learjet 35, 4 VC-130H, and 5 utility helicopters.

Saudi Arabia has moderate but aging inventories of air munitions and spares-- a marked decline from the large inventories of cutting edge munitions and high inventories it had at the time of the Gulf War. The Kingdom has not continued to properly maintain and modernize its munitions inventory, however, and has not procured all of the air-to-ground and anti-ship ordnance it needs for joint warfare.

Up until the mid-1990s, the Saudi Air Force had excellent foreign support. There have, however, been growing financing and payment problems since the mid 1990s, and they grew worse after the "oil crash" of late 1997. Saudisation has not helped, nor has adequate use been made of the offset program. Foreign contractors have often been

replaced with Saudis selected more for their contacts than their skills, and training programs for Saudis have not enforced the proper qualification standards. Saudi air forces facilities remain excellent. No US 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.

The Saudi Air Force's most important challenges are to improve its readiness, training, and capability for joint operations. Fortunately, Iraq's defeat has greatly reduced the potential threat, as has the slow rate of Iranian air modernization. As a result, Saudi Arabia has no immediate need to replace its F-5Es, or for any other form of major procurements. It can consolidate around its most advanced aircraft, creating a smaller and more effective force.

Saudi Land-based Air Defenses

The Saudi Air Defense Force had a nominal strength of 16,000 men in 2004, and some 33 surface-to-air missile batteries. Some reports indicated its total major surface-to-air missile strength included 16 Improved Hawk batteries with 128 fixed and mobile fire units, 9 Crotale batteries with 48 Crotale fire units (currently being modernized), 16 air defense batteries with 72 Shahine fire units, and 50 AMX-30SA 30 mm self-propelled guns. The IISS reported a strength 16 Improved Hawk batteries with 128 fire units, 17 air defense batteries with 68 Shahine fire units and AMX-30SA 30 mm self-propelled guns, and 73 Crotale and Shahine fire units in static positions. It reported a total inventory of 50 AMX-30 SAs, 141 Shahine launchers, and 40 Crotale launchers. It also reported 92 M-163 20mm Vulcan anti-aircraft guns and 50 AMX-30SA anti-aircraft guns, plus 70 L/70 40mm anti-aircraft guns in storage.

Most of Saudi Arabia's Shahine units were deployed in fixed locations for the defense of air bases and key targets. All of the Shahine systems have been 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 Army holdings of man-portable surface-to-air missiles include 500-700 Mistrals, 350-400 Stingers, and 500-600 Redeyes. The number and type of anti-aircraft guns currently operational is uncertain. Some reports state it has 35 35mm Oerlikon-Contraves twin AA guns with Skyguard fire control systems, 72 40mm L-70 AA guns, 53 30mm AMX-30 DCA twin anti-aircraft guns, and an unknown number of 20mm Vulcan M163 guns. Other reports indicate it had had 92 M-163 Vulcan 20 mm anti-aircraft guns, 30 V-150s with Vulcan 20 mm guns, 30 towed 20 mm Vulcans, 128 35 mm AA guns, and 150 L/70 40 mm guns (most in storage).

Reports differed as to whether Saudi Arabia had two or three major operational Patriot fire units, and there was one report it had a fourth. The US deployed an additional Patriot battalion near Riyadh in 2001, and some reports indicate equipment was pre positioned for a second. Another source cites only 8 active MIM-104 fire units. There seems to be agreement that operational readiness is limited. Live fire exercises only really began to improve in the fall of 2000, and mobile operations have taken years to develop. The first mobile deployment approaching a combat exercise was a road march from Dhahran to a site near King Khalid Military City in the fall of 2000.

The Saudi Air Defense force still needs to improve its capability for joint operations with the Saudi Air Force and Army, and the fact active US air forces and army forces has left Saudi Arabia mean that it must develop far more effective Air Defense Force and Air Force capabilities to use its C4 and IS&R assets effectively. The end of an Iraqi threat greatly eases the potential burden on both the Saudi Air Force and Army, however, and Saudi Hawk and Patriot units have improved Saudi Arabia's low to high-level air defense capability along Gulf coast, while providing some defense against medium-range and theater ballistic missiles.

Reform and the Military

As has been touched upon earlier, Saudi Arabia's primary need for reform does not affect its security apparatus. It is rather the need for the kind of economic, social, and political reforms that will develop and diversify its economy, and create jobs and economic opportunity for Saudi Arabia's rapidly growing population. Its second priority is to create more effective internal security forces without creating a climate of repression and without creating new cells of terrorists or groups of extremists. The reform of the Saudi military is now a distinctly third priority, and the control of the cost of Saudi forces and especially Saudi arms imports has priority over reforms that enhance military effectiveness.

Yet, Saudi Arabia does face major security problems as it enters the 21st Century. These problems include a wide range of external challenges such as Iran and Iraq, proliferation, Islamic extremism, counterterrorism, the threat of asymmetric warfare, improving cooperation with the Southern Gulf states, and restructuring the Kingdom's alliance with the US and the West. At the same time, Saudi Arabia must preserve its internal security and cope with the ongoing challenges of force transformation in a climate where funding constraints are becoming steadily more serious

Saudi Arabia must redefine many aspects of its security structure to meet these challenges. It must find ways to bring the Saudi force posture into better balance, to improve Saudi planning, and to ensure that modernization does not outpace readiness and sustainability. But, Saudi Arabia needs to do more than make its military forces more effective. Saudi Arabia needs to continue to explore the possibility that Iran may emerge as a moderate and pragmatic state, and it must look beyond the containment of Iraq. It cannot ignore the problems posed by Iranian conventional forces and proliferation. It needs to strengthen the Gulf Cooperation Council, and focus on stronger joint security efforts and interoperability with Bahrain, Kuwait, and the United Arab Emirates. It needs to create a more stable partnership with the US now that there is no longer a US presence in the Kingdom.

Saudi Military Development

Saudi Arabia is by far the strongest and most modern military power in the Gulf, and the only force large enough to provide the support, training, C⁴I/BM, and other specialized capabilities necessary to sustain modern land-air combat and provide the infrastructure for effective regional cooperation. Its military forces are now strong enough to deal with

many low-intensity contingencies, and limit the amount of US reinforcements needed in low-intensity contingencies.

Yet, Saudi Arabia does remain vulnerable to threats from Iran. Iran may be moving towards moderation, but Saudi Arabia cannot ignore its conventional military capabilities or efforts to proliferate. Saudi Arabia is within five to seven minutes flying time from Iran, from the earliest point of detection by an AWACS to over-flying key Saudi targets on the Gulf coast. Missile attacks would offer even less warning and present more problems for defense. While Iran cannot bring the bulk of its land power to bear without major increases in amphibious lift, it can bring naval and air pressure to bear on tanker and air traffic through the Gulf, and threaten Saudi Arabia in other ways. "Wars of intimidation" will generally offer Iran more prospects of success than actual fighting, and Iran's ability to intimidate will increase as it develops its missile forces, and chemical, biological, radiological, and nuclear warfare capabilities

Cooperation with Other Southern Gulf States

The best way of dealing with these challenges is not reforming the internal structure of the Saudi armed forces alone, but rather doing so in the context of more effective efforts to develop collective security. The lack of effective military cooperation between the Kingdom, other moderate Gulf states, and its Arab neighbors outside the Gulf presents major problems for Saudi Arabia that are not easy to solve. Saudi Arabia cannot turn to the rest of the Arab world for meaningful military support. The failure of the Damascus Declaration to give Saudi Arabia any credible guarantee of Egyptian and Syrian reinforcements was the result of far more than Arab politics and Egyptian and Syrian demands for money. Neither Egypt nor Syria is organized to project effective combat forces. They lack most of the technological advantages of US and Saudi forces, and they are not equipped and trained to provide the Saudi Air Force and Saudi Army with the mix of interoperable capabilities they need. Although they are Arab and Muslim, they also are states with separate interests, regional ambitions, and strategic objectives that often differ from those of Saudi Arabia.

Saudi Arabia badly needs to strengthen its cooperation with Bahrain, Kuwait, the UAE, and the Gulf Cooperation Council. So far, however, there has been more progress in political and economic areas than in military areas. Efforts to create a GCC-wide C⁴I system for air defenses are making progress, but they are still in the early stages of development, and the GCC has only made serious progress in a few areas of military exercise training like air combat and mine warfare. The GCC's longstanding failure to agree on effective plans for cooperation, interoperability, and integration has left the military role of the GCC a largely symbolic one. The GCC will only play a major role in regional security once it can develop integrated air defenses, develop integrated mine warfare and maritime surveillance capabilities, an ability to deal with Iranian surface and ASW forces, rapid reaction forces that can actually fight, and the ability to defend Kuwait and Eastern Saudi Arabia against land attack.

Saudi Arabia needs to look beyond its own military modernization program and take tangible steps to expand military cooperation with the GCC. Even if this is not possible on a GCC-wide basis, Saudi Arabia must focus on finding ways to strengthen the defense of its northern border area and Kuwait. At a minimum, that Saudi Arabia must work to:

- Create an effective planning system for collective defense, and the creation of interoperable forces with common C⁴I/BM capabilities, and interoperable infrastructure and sustainability.
- Provide the infrastructure, transportation, sustainability, training and C⁴I systems to rapidly deploy Saudi forces to support the joint land defense of the Kuwaiti/Northwestern Saudi borders and to reinforce other Gulf states like Oman in the event of any Iranian amphibious or airborne action.
- Create joint air defense and air attack capabilities with an emphasis on Saud-Kuwaiti-Bahraini cooperation.
- Integrate the Saudi C⁴I and sensor nets for air and naval combat, including BVR and night warfare, link them to Kuwait, Bahrain, and the other Southern Gulf states.
- Create joint air and naval strike forces to deal with threats from Iran and Iraq.
- Develop a joint war fighting capability to provide minesweeping, naval-based air and anti-ship missile defenses to protect Gulf shipping, offshore facilities, ports, and coastal facilities.
- Establish effective cross-reinforcement and tactical mobility capabilities throughout the Kingdom with special emphasis on the defense of Kuwait and the Saudi-Iraqi border. Emphasize forward defense and active maneuver warfare.
- Prepare for rapid over-the-horizon reinforcement by the US and other Western powers. Seek a solution to the lack of US Army prepositioning in Saudi Arabia.
- Set up joint training, support, and infrastructure facilities with the other Southern Gulf states.
- Create common advanced training systems that develop a brigade and wing-level capability for combined arms and joint warfare, and which can support realistic field training exercises for Saudi and allied Southern Gulf forces of the kind practiced by US and Israeli forces.
- Develop a common capability to provide urban and urban area security and to fight unconventional warfare and low-intensity combat.
- Begin development of a broadly based counter-proliferation program.

Force Transformation and Mission-Oriented Procurement Priorities

External issues, are only part of the challenges the Kingdom must meet. The time is over when the Kingdom could spend its way out of its military development problems, or could excuse the lack of overall balance and effectiveness in its forces on the grounds it was still in the early phases of force modernization and development. Saudi Arabia needs to give its force development efforts far more focus in order to develop a program of force transformation that can better meet its future needs. In doing so, it must focus on procuring interoperable and/or standardized equipment to provide the capability to perform the following missions:

- Heavy armor, artillery, attack helicopters, and mobile air defense equipment for defense of the upper Gulf.
- Interoperable offensive air capability with standoff, all-weather precision weapons and anti-armor/anti-ship capability.
- Interoperable air defense equipment, including heavy surface-to-air missiles, BVR/AWX fighters, AEW & surveillance capability, ARM & ECM capability. (Growth to ATBM and cruise missile defense capability)
- Maritime surveillance systems and equipment for defense against maritime surveillance, and unconventional warfare.
- Mine detection and clearing systems.
- Improved urban, area, and border security equipment for unconventional warfare and low-intensity conflict.
- Advanced training aids.
- Support and sustainment equipment.

Eliminating the Glitter Factor

Money is a critical issue and will become steadily more important in the future. Saudi Arabia signed nearly \$25 billion worth of new arms agreements between 1993 and 2000, and took delivery on \$66 billion worth of military imports.³² This is more than the Kingdom can afford, and Saudi Arabia needs to consolidate its modernization programs to reduce its number of different suppliers and major weapons types and Saudi Arabia needs to establish much more strict limits to its defense spending and make its spending more effective. One key is the emphasis on mission capabilities just discussed; another is to give proper priority to readiness, training, and sustainability.

Realistic Limits on Military Spending and Arms Purchases

Saudi Arabia needs to set firm and realistic limits on its military procurement spending. The goal for Saudi Arabian military procurement should not be simply to buy the best or most possible equipment, but rather to improve the overall holdings of combat forces in a balanced and evolutionary manner. It should be to reach the maximum possible interoperability with the power projection capabilities of US land and air forces, and to procure the training, munitions, and support facilities to deal with the threat from Iran.

This Kingdom needs to recognize that it can no longer afford military procurement efforts that emphasize political considerations and/or high technology “glitter” over military effectiveness. Saudi Arabia needs long-term force plans and planning, programming, and budget systems that create stable and affordable force development and defense spending efforts. It needs to bring its manpower quality and sustainment capabilities into balance with its equipment. It needs to recognize that its effectiveness is heavily dependent on interoperability with US and GCC forces.

Reducing Future Waste

There should never be another massive Saudi arms package deal with the US or Europe of the kind that took place during the Gulf War or a purchase like Al Yamama. Barring a future major war, purchases should be made and justified on a case-by-case basis, off budget and oil barter deals should be illegal, and all offset deals subject to annual public reporting with an independent accountant and auditor.

Saudi Arabia must also take every possible step to eliminate the waste of funds on:

- Unique equipment types and one-of-a-kind modifications.
- “Glitter factor” weapons; “developmental” equipment and technology.
- Arms buys made from Europe for political purposes where there is no credible prospect that the seller country can project major land and air forces.
- Non-interoperable weapons and systems.
- Submarines and ASW systems.
- Major surface warfare ships.
- Major equipment for divided or “dual” forces.
- New types of equipment that increase the maintenance, sustainability, and training problem, or layer new types over old.
- New types of equipment which strain the financial and manpower resources of Saudi Arabia, and overload military units that are already experiencing absorption and conversion problems in using the equipment they possess or have on order.

Reshaping Defense Planning, Programming, Budgeting, and Transparency

Saudi Arabia needs to make fundamental reforms in the way it shapes its defense plans, budgets, and purchases. Secrecy does not aid effective planning or preserve the Kingdom’s security. It instead encourages poor planning and budgeting, as well as corruption and cronyism. It encourages the failure to insist on plans that force the various military services to develop joint plans, demonstrate their effectiveness, and convince the Saudi people that they get the security their money should buy. It also makes it impossible to explain the need for the Kingdom’s alliances, and the nature of the threats the Kingdom faces.

The creation of public defense plans, programs, and program budgets is one way to help reform the Kingdom's defense planning, programming, and budgeting system; to set a sustainable level of defense spending, and to build public confidence and trust. The Kingdom should also begin to issue white papers explaining major defense purchases, real-world progress in offset efforts, and other major security actions is another way to build that trust and reduce political pressure from outside countries over issues like major arms purchases.

Arms Sales and Security Assistance

Both the Saudi government and its foreign arms suppliers need to recognize that the majority of educated Saudis already ask serious questions about the value of Saudi Arabia's arms imports and the honesty of the procurement and delivery process. This questioning comes from senior Saudi officials and some junior members of the royal family as well as the public, and is one of the few areas where Saudi Arabia's most progressive businessmen and technocrats and Islamic extremists agree in criticizing the Saudi government. The time has passed when the Saudi government could deal with these problems with secrecy and silence. It needs to make its programs more public, bring them openly on budget, and demonstrate that it has accounting procedures that limit favoritism and commissions to levels that are broadly acceptable in Saudi society.

Effective arms buys also require hard choices and well planned trade-offs, and Saudi Arabia is long past the point where it simply can throw money at the problem. It needs a stable long-term procurement plan that spends no more than 60-70% of what the Kingdom has averaged since the Gulf War, that limits total outstanding orders to \$7-8 billion, and focuses on its highest priorities for standardization and inter-operability with the US, and which ensures that Saudi Arabia does not buy a series of partly incompatible systems when it buys from other countries.

The West must be careful in pressing for military sales in ways which do not meet vital Saudi security needs and which do not take Saudi Arabia's domestic economic problems and social needs into account. Saudi Arabia has long been the largest single customer for US and European military exports. Saudi purchases had the benefit of increasing interoperability and sustainability with British, French, and US forces, and reduced the unit cost of equipment purchased by Western forces. It is clear, however, that Saudi Arabia faces serious long-term constraints on what it can buy in the future, and that it will often have to make hard choices between the military desirability of standardization with Western power projection forces and the political need to buy arms from a range of friendly states.

Defense contractors will be defense contractors, they exist to sell regardless of need or merit. Governments, however, must act as governments and think first of their strategic interests. It is time that governments of Europe and the US make it clear to the Saudi people that they emphasize Saudi security, military readiness, and effectiveness rather than exports and sales. They need to make it clear that they are not pressuring Saudi Arabia to buy unnecessary arms, recognize Saudi Arabia's need to limit its purchases to the level Saudi Arabia can afford, and act to prevent corruption and ensure that arms buys are part of packages that include the proper support, training, munitions stocks, and sustainability.

Broader Social and Economic Reforms are the Key Security Priority

It cannot be stressed too firmly that Saudi security is best preserved by broad progress and reform, and not by reforming the Saudi military or intelligence services. The state of the Saudi economy, and coming to grips with the Kingdom's problems with education, Saudisation, youth employment, and demographics, are the true keys to internal security. So is a level of political progress that expands the role ordinary Saudis can play in government, and making further reductions in sources of social unrest like corruption. Even the best counterterrorist operations can only deal with the small fraction of the Saudi population that are violent extremists. True internal security is based upon popular support.

There is no reason that Saudi Arabia should always copy Western approaches to internal security and law enforcement as it makes these changes. The Kingdom can preserve its Islamic character and still take the necessary steps to end support for violent Islamic extremism both within and outside Saudi Arabia. Similarly, Saudi Arabia can also do much to liberalize and improve human rights without giving up its own national cultural traditions and still act to suppress terrorist and extremist activity.

Nevertheless, Saudi economic and political reform cannot take place without sufficient social and religious reform, and without sufficient tolerance of modern media and communications, to allow Saudi Arabia to compete in global economic terms. Saudi Arabia must become a more open society and one where its young men and women are fully prepared to compete in the market place with global efficiency. This is not a need based on the moral and ethical need to improve human rights – valid as such issues are -- it is a pragmatic need that is vital to Saudi Arabia's future development and growth.

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