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Iraqi War Fighting Capabilities: A Dynamic Net Assessment

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Introduction

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Introduction

Any effort to provide a dynamic net assessment of Iraq's military capabilities involves a wide range of challenges. The uncertainties and "intangibles" affecting any assessment of Iraq's military capabilities -- and any war that has not yet been fought -- are at least as important as the hard data on its force strength and order of battle.

There is reason for modesty in any form of military analysis, and above all in speculating about future wars. The proper rules for such analysis were laid out over two millennia ago by Thucydides in writing his History of the Peloponnesian War, (c. 420 BC): "...I did not even trust my own impressions, but it rests partly on what I saw myself, partly on what others saw for me, the accuracy of the report being always tried by the most severe and detailed tests possible." These are tests no one can meet in talking about a war that has not happened, and in this case there are many options and possible contingencies.

Iraq is already involved in a political struggle that is an extension of war by other means and the course of this "war of sanctions" can sharply alter its military capabilities over time. While current attention focuses on US military efforts to overthrow Saddam Hussein's regime, Iraq may become involved in a wide range of conflicts, many of which may take on a number of different forms and become asymmetric in character. Iraq's continuing efforts to develop weapons of mass destruction and advanced delivery systems compound both the uncertainties in assessing its military capabilities, and the uncertainties as to how it would behave in given contingencies.

Nevertheless, a great deal is known about Iraq military capabilities and probable behavior, as well as about the military capabilities and behavior of its potential enemies. The list of potential contingencies is limited and there are often severe constraints on the options available to Iraq and its opponents. As a result, it is possible to make educated "guesstimates" as to Iraq's capabilities relative to most key scenarios, and about the strengths and weaknesses of its position in most contingencies.

Iraq's Current Military Forces

It is relatively easy to estimate the total size of Iraqi military forces, and to comment in broad terms on their capabilities. Iraq remains the most effective military power in the Gulf, despite the Gulf War, and the loss of some 40% of its army and air force order of battle. Iraqi forces are under the command of loyalists to the regime. These include General Sultan Hashim al-Ubaydi, the Minister of Defense, and General Ibrahim Abd Al-Satter Muhammad al-Tikriti, the Chief of Staff. Iraq still has armed forces with around 424,000 men, and an inventory of some 2,200 main battle tanks, 3,700 other armored vehicles, and 2,400 major artillery weapons. It also has over 300 combat aircraft with potential operational status.¹

The Iraqi Army and Key Security Elements

The International Institute of Strategic Studies estimates that the Iraqi army still can deploy some 375,000 men, organized into seven corps, with two Republican Guards corps and

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five regular army corps. These forces include six Republican Guards divisions (3 armored, 1 mechanized, and 2 infantry) plus four Special Republican Guards brigades. The regular army has some 16 divisions, and while 11 are relatively low-grade infantry divisions, 3 are armored divisions and 3 are mechanized divisions. The regular army also has five commando and two special forces brigades. While these units lack modern training and the regular army units are heavily dependent on conscripts, over one third are full time regulars or long-service reservists.

Other estimates by US Central Command (USCENTCOM) indicate that the Iraqi land forces have a total strength of 700,000 personnel, including reserves. These estimates indicate that Iraq's major combat formations include 17 regular army divisions (6 heavy and 11 light), and 6 Republican Guards Divisions (3 heavy and 3 light). USCENTCOM also estimates that the total Iraqi Army order of battle include six armored divisions, 4 mechanized divisions, 10 infantry divisions, 2 special forces divisions, 1 Special Republican Guards or Presidential Guard Division, 19 reserve brigades, 15 People's Army Brigades, and 25 helicopter squadrons.²

USCENTCOM and other US experts estimate that Iraqi divisions have an authorized strength of about 10,000 men, and that about half of the 23 Iraqi divisions have manning levels of around 8000 men, and "a fair state of readiness." Republican Guards Divisions have an average strength of around 8,000 to 10,000 men. Brigades average around 2,500 men -- the size of a large US battalion.³ Both sets of estimates give Iraq a total force, today, of approximately 20-23 division-equivalents, versus 35-40 division-equivalents in the summer of 1990, and 67-70 division-equivalents in January 1991 -- just before the Coalition offensives began in the Gulf War.⁴ Iraqi manning levels are, however, uncertain. There are many reports of badly undermanned units, but Iraq has also carried out a number of reserve call ups in 2002.⁵

The Iraqi Army relies on large numbers of combat-worn and obsolescent weapons, but it does have some 700 relatively modern T-72 tanks, 900 BMP-series armored infantry fighting vehicles (AIFVs), 150 self-propelled artillery weapons, and 200 multiple rocket launchers. It has extensive stocks of AT-3, AT-4, Milan, and High-subsonic Optically Teleguided (HOT) anti-tank guided weapons, and roughly 100 attack and 275 utility/transport helicopters. The mobile elements of Iraq's 17,000 man Air Defense Command can deploy large numbers of manportable surface-to-air missiles, plus SA-7, SA-8, SA-9, and Roland vehicle mounted surface-to-air missiles.

Iraq also has extensive internal security and paramilitary forces. The entire police and law enforcement system performs internal security functions, and there are parallel internal security services with units in virtually every town and city. The Republican Guards and Special Republican Guards units are specially trained for urban warfare and security operations, as well as conventional military operations, and there are three paramilitary forces. The security troops have some 15,000 men, the border guards around 9,000, and Saddam's Fedayeen consist of 18,000 to 20,000 men.

The Deployment of Army and Security Elements

US experts indicate that Iraq's divisions are arrayed north-to-south in early 2001, with a mix of regular and Republican Guards divisions. All of the divisions near the Kuwait border are regular, although some Republican Guard divisions could move to the border relatively rapidly.

US experts indicate that Iraqi land forces have a total of fourteen divisions in the north, three divisions in central Iraq, and six divisions south of An Najaf. The Republican Guards had a total of three armored divisions deployed in the vicinity of Baghdad—one near Taji, one near Baghdad, and one near As Suwayrah.⁹ All Republican Guards divisions are located above the 32-degree line. Several additional Republican Guards divisions are located around Baghdad to play a major role in internal security. Several more Republican Guards divisions were located north of Baghdad closer to the Kurdish area.¹⁰

Estimates by Jane's indicate that the regular Army is organized into five major corps, with 17 main force division equivalents and major bases at Baghdad, Basra, Kirkuk, and Mosul. There are major training areas west of Baghdad, near Mosul, and in the Marsh areas in the south. The training area southwest of Basra has had only limited use because of the "no fly zones."¹¹

If one exempts the forces dedicated to the security of the regime and deployed near Baghdad, and similar internal security garrisons in Basra and Kirkuk, the Army forces are deployed as follows:

- *Northern Iraq*: The 1st Corps is headquartered at Kirkuk and the 5th Corps at Mosul. They guard the Turkish border area and deploy on the edge of the Kurdish enclave, and guard the oilfields in the north.
 - The 1st Corps includes the 2nd Infantry Division headquartered at Alabee, the 5th Mechanized division headquartered at Shuwan, the 8th Infantry Division headquartered at Shuwan, and the 38th Infantry Division headquartered at Quader Karam.
 - The 5th Corps has units defending the border area with Syria. It includes the 1st Mechanized Division headquartered at Makhmur, the 4th Infantry Division headquartered at Bashiqa Maonten, the 7th Infantry Division headquartered at Alton Kopri Castle, and the 16th Infantry Division headquartered near the Saddam Dam and Mosul.
- *Eastern Iraq*: The 2nd Corps is headquartered at Deyala, and is deployed east of Baghdad to defend against Iran or any attack by Iranian-backed Iraqi opposition forces. It includes the 3rd Armored Division headquartered at Jalawia, the 15th Infantry Division headquartered at Amerli, and the 34th Infantry Division headquartered near Khanaqin
- *Southern Iraq* has two corps that play a major role in securing Shi'ite areas and suppressing Shi'ite dissidents
 - The 3rd Corps is headquartered in the Nasseria area, and is positioned near the Kuwaiti border. It includes the 6th Armored Division headquartered near Majnoon and Al Nashwa, the 11th Infantry Division headquartered at Al Nasseria, and the 51st Mechanized Division headquartered at Zubair.
 - The 4th corps is headquartered at Al Amara, and defends the border with Iran. It includes the 10th Armored Division headquartered near Al Teab and Al Amarra, the

14th Infantry Division headquartered south of Al Amara, and the 18th Infantry Division headquartered near Al Amara and Al Musharah.

The Republican Guard adds two more corps, with seven divisions, to this list:

- *The Northern Corps of the Republican Guards* can act to defend against Iran and operate against the Kurds, but its primary mission seems to be the defense of the greater Baghdad area and Tikrit. The four brigades al Madina al Munawara Armored Division is located at the Al Rashedia and Al Taji camps, and plays a key role in defending the outer Baghdad area. The Special Republican Guards provide protection and defense within the city. The Northern Corps also includes the 1st Adnan Mechanized Division at Mosul, the 2nd Baghdad Infantry Division at Maqloob Maontin-Mosul, and the Al Abed Infantry Division at Kirkuk-Khalid Camp.
- *The Southern Corps of the Republican Guards* is headquartered at Al Hafreia and the Al Fateh al Mubin Command Center. It helps defend against Iran in the south, as well as any US-led attack, and acts as a deterrent force to suppress any Shi'ite uprising. Its forces include the Nabu Khuth Nusser Infantry Division at Al Husseinia-al Kutt, the Hamurabi Mechanized Division in the Al Wahda area, and the Al Nedaa Armored Division near Baaquba-Deyla.

The Special Republican Guards add four brigades, which are located largely within the Baghdad area organized to defend the regime. The Special Republican Guard has four infantry/motorized brigades with 14 battalions, an armored brigade, and an air defense command with elements to secure Baghdad's ground-based air defenses against any coup attempt. It has a total active strength of about 12,000 to 15,000, but can rapidly mobilize to 20,000 to 25,000. It is the only force stationed in central Baghdad and in the Republican Palace, although these are also brigades of the Special Security Service (SSO), the Iraqi Intelligence Service (IIS), and secret police in the city.

- The First Brigade is headquartered at Hayy Al-Qadisiyeh in Baghdad and has five battalions, including ones stationed in the Republican palace and at Saddam International Airport. Additional battalions, including plain-clothes units, are assigned to protect Saddam while he is in transit, and are assigned to guard other palaces and facilities.
- The Second Brigade is headquartered at the Al Rashid military base, and has combat-experience elements outside Baghdad and in the Mosul area.
- The Third Brigade is headquartered at Taji and has four combat battalions to defend Taji and the approaches to Baghdad.
- The Fourth Brigade is motorized and is located at Al Harithiyeh and Al Quadisiyeh, and defends the southern outskirts of Baghdad.
- The Armor Command (Fourth Armored Brigade) has T-72s, BMP-1 and BMP-2s, and two armored regiments, one located at the Abu-Ghraib Camp, and another near the Al-

Makasib village. They provide armored forces to defend the major entrance points to the city.

The sheer scale of the forces protecting the regime is illustrated by an estimate by Amatzia Baram who puts the total number of men involved in the various internal security and intelligence organizations at over 100,000, and possibly as high as 150,000, excluding the Republican Guards put including some 30,000 in the police forces and 20,000 border guards.¹² The Military Intelligence Service, or Al Estikhbarat al Askariyya, alone is a 3,000-5,000-man element with a major complex in the Aladhamia area of Baghdad. It also has a base at the Al Rashid Camp, and elements in Kirkuk, Mosul, and Basra. The Special Branch is organized to carry out covert operations, infiltrate opposition movements, and provide internal security operations within the military. The Military Security Service, or al Amn al Askariyya, reports directly to the Presidential Palace, and deals with subversion within the military forces.

All of these forces have significant limitations. The army and internal security forces have lost many of their personnel with combat experience, have had limited exercise training, and have never mastered combined arms and joint operations by Western standards. They have, however, had ongoing low-level combat experience against the Shi'ite opposition in Southern Iraq, and often deploy to positions opposite Iran and the Kurdish security zone. They do conduct static fire training and limited maneuver training, and the Special Republican Guards, Republican Guards, and security forces are trained for urban warfare and to put down uprisings. The Republican Guards units never broke during the Gulf War, and the army's regular armored, mechanized, and commando/special forces units have generally fought with considerable determination when ordered to do so.

Iraq has other problems. Saddam exercises tight central control in his self-appointed role as field marshal, and innovation and initiative are often discouraged. Saddam's rotation of commanders to ensure their loyalty, promotion for loyalty or because of tribal origin, the ruthlessness of the security services, and tensions between the regular forces, Republican Guards, Special Republican Guards, and various security services create additional problems. While a number of seemingly convincing reports of security, problems, defections, and coup attempts have proved false, at least some seem to be correct. Saddam has also tried on several occasions to create a parallel popular force that would act as a further check upon the regular forces. Such forces failed dismally during the Iran-Iraq War, but the latest such effort is the so-called Jerusalem Army, which has been created since the start of the Second Intifada and is under General Iyad Futayyih Khalifa al-Rawi, a former Republican Guards commander. This force is reported to have a goal of 21-divisions, but Iraq lacks the experienced cadres, equipment, supplies, and manpower input to build up anything like such a force except at the cost of its other land-force units.¹³

The Iraqi Air Force

The Iraqi Air force has around 30,000 men. It still has some 316 combat aircraft, although only about 50-60% are servicable. Senior pilots still fly 60-120 hours a year depending on the aircraft, but junior pilots fly as few as 20.

The IISS estimates that the air force has 6 obsolete H-6D and Tu-22 bombers, and 130 attack aircraft. These include Mirage F-1EQs, Su-20s, 40 Su-22s, 2 Su-24s, and 2 Su-25s. Iraq still has extensive stocks of short-range air-to-ground missiles and cluster bombs. It also has 180 air defense fighters, including 12 MiG-25s, 50 Mirage F-1EQs, and 10 MiG-29s, plus 5 MiG-25 reconnaissance aircraft. Additionally, the air force has extensive stocks of MiG-21s, training aircraft, and drones, and has experimented with using them as unmanned aerial vehicles (UAVs) and unmanned combat aerial vehicles (UCAVs). It still has 2 IL-76 tankers and large numbers of transport aircraft.

Jane's provides a different estimate with the following key combat types; the number estimated to be in service are shown in parenthesis: 40(0) F-7, 30 (13) Mirage F-1EQ, 36 (15-25) Mig-21, 35 (15-20) Mig23, 6 (3-6) MiG-25, 17 (1) Mig-29, 33 (15-18) Su-20/22, 21 (6-11) Su-25, 2 T-22, and 3 Tu-16.¹⁷

Air Force air-to-air and air-to-ground training is limited and unrealistic. In the past, command and control has been over-centralized and mission planning has often set impossible goals. The two No Fly zones have further limited air training and combat experience. There are no modern airborne sensor, command and control, or intelligence capabilities, other than a small number of UAVs. Air control and warning is still heavily dependent on outdated ground-based intercept capabilities. The Air Force has, however, practiced penetration raids by single low-flying aircraft, and has shown that it can conduct independent offensive operations at the small formation level.

The heavy surface-to-air missile forces of the Air Defense Command are still organized into one of the most dense defensive networks in the world. There are four regional air defense centers at Kirkuk (north), Kut al Hayy (east), Al Basra (south), and Ramadia (west). Major command facilities are underground and hardened. Additionally, there is a network of redundant radars and optical fibre command links. Reports differ over the extent to which China has helped Iraq create a modern and highly survivable optical fibre command net. There are unconfirmed reports of more modern radars being smuggled in from the Ukraine.

The system is backed by extensive low-altitude anti-aircraft (AA) guns, and SA-8b, SA-11, and SA-13 short and medium range missiles. The Sterla 2 and 10 (SA-7 and SA-10) are used for terminal defense of key buildings. Iraq has learned to rapidly move its fire units and sensors, use urban cover and decoys, use "pop-on radar" guidance techniques, and optical tracking. Its mix of SA-2s, SA-3s, and SA-6s is badly outdated, but some modifications have been made.

The Iraqi Navy

The 2,000 man Iraqi Navy has never been an effective force and was devastated during the Gulf War. It now has only 6 obsolete Osa and Bogomol guided missile patrol craft, and three obsolete Soviet inshore minesweepers. Iraq does, however, retain all of the shore-based Silkworm and other anti-ship missiles it had at the time of the Gulf War, and extensive stocks of mines -- some of them relatively modern and sophisticated. (The US never succeeded in targeting land-based Iraqi anti-ship missiles during the Gulf War, and the US and British Navies entered Iraqi mine fields without detecting their presence.)

Iraqi Operational Capabilities

Iraq has demonstrated that it can still carry out significant ground force exercises and fly relatively high sortie rates. It has not, however, demonstrated training patterns that show its army has consistent levels of training, can make effective use of combined arms above the level of some individual brigades, or has much capability for joint land-air operations. It also has not demonstrated that it can use surface-to-air missiles in a well-organized way as a maneuvering force to cover its deployed land forces.

Iraq does retain the ability to rapidly move heavy armored forces by tank transporter if it can use its road net and does not face major air opposition. Republican Guard and regular army armored and mechanized divisions probably can fight well from defensive positions, although such tactics did little to ensure their survivability in the Gulf War because of US superiority in air power, attack helicopters, thermal sights, and range of engagement. Iraqi artillery outranges US tube artillery, but the advantage is of little or no operational meaning because Iraq has very limited targeting capability beyond visual range, has not developed the capability to rapid shift fires, and has limited artillery maneuverability. Iraq conscript forces receive comparatively limited training, the Iraqi NCO corps is weak, junior officers receive rote training and are given limited initiative, and combined arms and joint training remain serious weaknesses.

Iraq made poor use of fixed and rotary wing combat aircraft in close support and interdiction missions throughout the Iran-Iraq War, and never had the chance to conduct such operations during the Gulf War. Contrary to Iraqi opposition reports – which seek to transfer the blame for the failure of their post-war uprisings to the US – Iraq never needed to make extensive use of attack helicopters to suppress their uprisings. It was able to rely on its virtual monopoly of armor and artillery,

Iraq's infrastructure is now better than its combat forces. Iraq has been able to rebuild many of the shelters and facilities it lost during the Gulf War, and much of the Air Force combat, command, control, communications and intelligence/battlefield management (C⁴I/BM) system. This C⁴I/BM system included an extensive net of optical fiber communications net, a TFH 647 radio relay system, a TFH tropospheric communications system, and a large mix of radars supplied by the Soviet Union. Iraq has rebuilt most of the air bases damaged during the Gulf War, and a number of bases received only limited damage. This gives Iraq a network of some 25 major operating bases, many with extensive shelters and hardened facilities.¹⁸

Most experts do not believe Iraq has nuclear weapons or has any significant domestic ability to produce fissile materials. Ex-IAEA inspectors do believe, however, that Iraq retains all of the technology needed to make moderately sized implosion weapons if it can obtain fissile material. It has developed its own initiators, HE lenses, and switching devices. Iraq retains chemical and biological weapons, and is believed to have anywhere from 15-80 Scud missile assemblies of various types.

The Problem of Sanctions and Equipment Modernization

Sanctions and the impact of the Gulf War have had a major impact on Iraqi war fighting capabilities. Iraq has not been able to fund and/or import any major new conventional warfare

technology to react to the lessons of the Gulf War, or to produce any major equipment -- with the possible exception of limited numbers of Magic “dogfight” air-to-air missiles. Iraq’s inability to recapitalize and modernize its forces means that much of its large order of battle is now obsolescent or obsolete, has uncertain combat readiness, and will be difficult to sustain in combat. It also raises serious questions about the ability of its forces to conduct long-range movements or maneuvers, and then sustain coherent operations.

Iraq has, however, maintained much of the clandestine arms purchasing network that it set up during the time of the Iran-Iraq War. It has prior experience in buying from some 500 companies in 43 countries, and has set up approximately 150 small purchasing companies or agents. Intelligence experts feel that Iraq also has an extensive network of intelligence agents and middlemen involved in arms purchases. Iraq has probably obtained some air defense equipment from countries like the Ukraine and China, and may have been able to smuggle in some spare parts through Syria, Turkey, and Jordan. The smuggling from Syria may be particularly significant, and seems to involve 80 Russian jet engines for fighters like the MiG-29, fighter radars and avionics equipment, T-72 and T-55 tank engines, Czech anti-aircraft weapons, replacement parts for T-72s, military trucks.¹⁹

Nevertheless, Iraq has not been able to restructure its overall force restructure to compensate for its prior dependence on an average of \$3 billion a year in arms deliveries. It has not visibly deployed any major new weapon system since 1991, or been able to recapitalize any aspect of its force structure. About two-thirds of its remaining inventory of armor and its aircraft is obsolete by Western standards. Iraq has lacked the funds, spare parts, and production capabilities to sustain the quality of its consolidated forces. While it has domestic military production facilities, it is limited to the production of guns and ammunition, and has never succeeded in mass-producing more advanced weapons. Many of its modernization efforts have shown some technical skill, but others have been little more than unintentional technical practical jokes.

In contrast, Saudi Arabia has taken delivery on over \$66 billion worth of new arms since 1991, Kuwait has received \$7.6 billion, Iran \$4.3 billion, Bahrain \$700 million, Oman \$1.4 billion, Qatar \$1.7 billion, and the UAE \$7.9 billion. Equally important, the US has made major upgrades in virtually every aspect of its fighter avionics, attack munitions, cruise missile capabilities, and intelligence, reconnaissance, and targeting capabilities.

The Problem of Dynamic Net Assessment

Translating these broad Iraqi military capabilities into some form of “dynamic net assessment” is far more difficult than making broad generalizations about the size and readiness of Iraqi military forces. A dynamic net assessment means that Iraqi capabilities have to be compared to specific threat forces in specific contingencies, and this presents two major complications:

- First, the war fighting capabilities of Iraqi forces are heavily affected by a wide-range of uncertainties and intangibles, and traditional analyses of order of battle and of weapons types and effectiveness are more likely to mislead than inform.

- Second, there are a wide range of contingencies that can affect Iraq's future, and a dynamic assessment of one preferred contingency. In a number of such contingencies, the political impact of Iraq's military capabilities is likely to be more important than its warfighting capability. In other contingencies, Iraq is virtually forced to engage in asymmetric warfare. In fact, Iraq has every reason to avoid the kind of "conventional" battles that could involve US-led coalitions fighting on terms unfavorable them.

Uncertainties and Intangibles

Wars and battles are rarely decided by "tangible" factors, like manpower and equipment numbers, quantifiable aspects of sustainability, or other measures of effectiveness. In case after case, the real world outcome of war has been determined by "intangibles," where various experts differ sharply over the relative capability of each side. For example, it is very easy to assert that Iraq's major combat units will fight with loyalty and determination because of their privileges, dependence on the regime, and nationalism. It is equally easy to assert that they will rapidly collapse or defect because the regime is an unpopular tyranny.

In practice, however, Iraq's performance in past wars have shown that many aspects of its military behavior cannot be predicted until a war starts, and that these uncertainties interact with those affecting any predictions about the military performance of Iraq's opponents. The following "intangibles" and uncertainties regarding Iraqi warfighting capability affect any dynamic net assessment of Iraq:

- The real world popularity and unpopularity of the regime among the various elements of the armed forces and in areas of military operations. Loyalty may vary across different force elements, such as Republican Guards, Special Republican Guards, regular army with regular manning, and regular army with largely conscript manning.
- The real-world impact of repression and tyranny versus incentives, nationalism, and propaganda in determining popular support for the regime or active opposition. The impact of issues like ethnic divisions, UN sanctions and the oil for food program, and backlash from the Second Intifada.
- Willingness of Kurds to participate in a conflict or ride one out; loyalty of various Shi'ite elements versus uprisings and resistance.
- Efficacy of bribes and incentives in buying loyalty.
- Impact by combat element of more than 10 years without open access to world arms market, along with limited discretionary funding for force maintenance and modernization; past ability to smuggle in parts, weapons, and munitions.
- Uncertain sustainability of munitions and spare parts.
- Quality of training, and leadership experience by unit and force element.

- Reliance on a rigid logistic system, emphasizing “flood forward” techniques to make up for a lack of response to the needs of commanders and the tactical situation, by moving supplies forward in large amounts, regardless of the immediate need.
- Progress in reducing the past rigidities and over-centralization of the command system, and its failure to allow for independence of action.
- Real-world ability to execute urban warfare and military operations in built up areas; also, the ability to shelter in populated areas, and use human shields, without popular uprisings or action. Impact of ethnic divisions, tribal loyalties, etc. in given areas.
- Level of improvement in air operations and in ability to conduct effective air-to-air and air-to-ground combat using dispersed forces capable of independent operations.
- Efficiency of dispersal techniques and human shields, plus decoys and deception, in limiting the efficacy of US intelligence and strategic reconnaissance (ISR), targeting, and air strike capabilities.
- Ability to make effective use of water barriers and earth barriers; ability to tie combat engineering to real world military tactics in the face of US airpower and helicopter mobility.
- Ability to effectively deploy and concentrate air defense assets for tactical purposes, versus exploit largely fixed SA-2/ SA-3, and SA-6 system.
- Short and medium-term wartime survivability of heavy surface-to-air missile defenses.
- Current status of joint warfare and combined arms expertise, and improvement in such expertise, if any.
- Cohesive maneuvering capability and ability to use helicopters to overcome water barriers and to reinforce.
- Since 1991, improvements in artillery tactics and methods to acquire long-range targeting capabilities and manage and switch fires.
- Planning and real-world capability to execute asymmetric warfare, covert warfare, and use terrorist proxies.
- Effectiveness of the security and paramilitary forces in the face of any serious popular opposition.
- Size and effectiveness of Iraqi opposition forces, if any.
- Size and effectiveness of current holdings of chemical, biological, radiological, and nuclear (CBRN) weapons and missiles, and other delivery systems.

- Existence of preplanned launch on warning (LOW), launch under attack (LUA), and retaliatory strike capability to deliver CBRN forces; deployment of covert and terrorist proxy capabilities.

It is easy to guess at -- or to assert -- some judgment about Iraqi capability in any of the above areas. It is certainly true that little about Iraqi military behavior since 1991 implies that Iraq will suddenly achieve dramatic degrees of surprise and innovation in military operations, but this can scarcely be ruled out, and the issue is often one of marginal or relative efficiency.

In any given contingency, Iraq *may* have enough war fighting capability to require a very significant US and allied response. In many contingencies, the weaknesses in Iraqi forces may not be critical relative to similar or different weaknesses in Iranian and other Gulf forces.

Defining the Key Contingencies

Another set of uncertainties arises because it is not possible to narrow down the range of contingencies used in any dynamic net assessment of Iraq to a few simple cases. Some US planners may wish to see the issue only in terms of a US effort to overthrow the Iraqi regime, but the following ten contingencies have enough credibility to merit at least summary discussion.

- Iraq faces continued containment without effective inspection. The battle is one of sanctions, propaganda, and perceptions.
- Iraq faces continued containment with effective inspection. The battle is still one of sanctions, propaganda, and perceptions, but selective military action may be needed to deal with proliferation.
- The continuing low-level air war over the “No Fly Zones” accelerates – perhaps with the downing of a US or British aircraft -- and the US/UK respond.
- Iraq becomes more confident over time, and feels that it can exploit the backlash against the US from the Second Intifada and war on terrorism to make another grab for Kuwait.
- Unforeseen events thrust Iraq into another confrontation with the Kurds in the north and/or Shi’ites in the south.
- Unforeseen events thrust Iraq into another major war with Iran.
- Iraq takes risks in a desperate attack on Kuwait.
- Iraq threatens or begins to execute missile and air attacks using CBRN weapons, or threatens an LOW/LUA response.
- “Existential response:” The US, its Gulf allies, Turkey and/or Israel face a “broken back” Iraqi effort to strike at population centers and other key targets in retaliation for its defeat, and the pending overthrow of Saddam’s regime.

- Iraq carries out major attacks against the US, Britain, Israel, or a Gulf state using covert action or a terrorist/extremist proxy.
- The US leads a coalition in a major military effort to remove Saddam Hussein's regime and conduct "nation building" to change the basic character of the Iraqi state.

It is important to note that Iraqi war fighting capabilities in all of the contingencies on this list are timeline dependent. Both the characterization of the contingencies, and the way in which they are likely to be fought, will change strikingly if Iraq can break out of sanctions and rearm; if Iraq can build-up a truly sophisticated capability to deliver CBRN weapons; if US operational capabilities in the Gulf should become limited; or if other strategic changes should take place in the major nations around Iraq.

Furthermore, only the most drastic contingencies involve a major change in the Iraqi regime and Iraq's future behavior. Most of the contingencies would be preludes to further struggles or confrontations. In the case of those contingencies that do involve regime change, it is far from clear that the next Iraqi regime would live peacefully in a peaceful Gulf located in a peaceful Middle East. As Haiti and other cases have shown, it is far easier to have good intentions than it is to execute them or avoid the law of unintended consequences. Even a prolonged post-Saddam nation-building effort might still result in leaving a troubled Iraq in a troubled region.

Iraq Faces Continued Containment Without Effective Inspection.

Iraq fully understands that diplomacy and politics are an extension of war by other means, and that such a battle is one of sanctions, propaganda, and perceptions. At this point in time, Iraq is losing, to the extent that it cannot legally import arms or military equipment, and cannot import dual-use items or equipment for its missile and CBRN programs. It is severely restricted by the "no fly" zones, and further constrained by the fact that the Kurds have de facto autonomy in their security zone.

Saddam Hussein's regime also faces major restrictions on its ability to use most of its oil export income as a result of UN sanctions and the oil for food program. The US and Britain have succeeded in winning broad UN support for an extended "smart sanctions" program, and the renewal of UN inspection under the United Nations Monitoring, Verification, and Inspection Commission (UNMOVIC). In spite of some smuggling, this ensures the steady deterioration of Iraq's conventional forces, and places severe limits on its missile developments, which must at least appear to involve systems with ranges of 150 kilometers or less. Additional restrictions force Iraq to keep its CBRN developments covert.

On the other hand, Iraq is winning to the extent that it has now been free of any meaningful UN weapons inspections for four years, and can carry out missile development while claiming to comply with the 150-kilometer limit on its missiles. Iraq again refused any meaningful UN inspection effort in July 2002. It blamed the US and Britain for the breakdown and accused the Bush Administration of being responsible for the lack of progress on the grounds that they only wanted inspections to resume in order to help their targeting efforts in an invasion of Iraq.²⁰

Iraq has substantial illegal purchasing networks overseas, and has succeed in importing significant amounts of technology for missiles and CBRN weapons, along with some parts and equipment for its conventional forces. This includes substantial improvements in its C⁴I systems, particularly in terms of optical fiber systems for its surface-to-air missile developments. While sanctions place severe limits on Iraq's overt testing of missiles, imports of large amount of chemical weapons feedstocks, and ability to create large, visible plants to produce fissile material, they place few limits on any other aspects of Iraq's WMD programs. In fact, the inability to import large conventional military equipment, and the ability to carry on with covert CBRN programs, acts as a further incentive for Iraq to concentrate on proliferation.

Iraq also has been largely victorious in the battle of perceptions in the region, exploiting the suffering of its own people and blaming the UN and US for the consequences of its failure to comply with the terms of the ceasefire. It is skillfully exploiting the Second Intifada; while its diplomacy has been successful enough to convince Turkey and all of the Arab states that they are better off living with Saddam than backing any US effort to overthrow his regime.

For more than a decade, the US State Department's effort to try to publicize Saddam's efforts to retain CBRN weapons, exploit sanctions and the oil for food program, and misuse of Iraq's revenues has ranged from dismal failure to total incompetence. The US has been equally ineffective in rebutting charges that it is responsible for large numbers of Iraqi deaths as a result of sanctions, and serious casualties and collateral damage that have resulted from militarily enforcing the "no fly zones." Its support of Iraqi opposition groups has done little more than contribute to exile politics, and has had no detectable impact on Iraq. Furthermore, the US has not succeeded in conducting any meaningful public diplomacy effort to justify its military presence in the Gulf or the value of its arms sales and military assistance efforts in the region. The US has achieved the exact opposite of information dominance. It has created an information vacuum that Iraq has been able to exploit.

The Kurds fear any open support of a US effort to overthrow Saddam. They have little historical reason to trust the US, benefit from the status quo, and from smuggling out oil and product and smuggling in forbidden items. The Shi'ite opposition is almost totally defeated, except for the occasional low-level bombing and assassination. The outside Iraqi opposition is weak, has no meaningful military capability, and is heavily penetrated by Iraqi intelligence.

Money is fungible, and Saddam has been able to use revenues from the oil for food program to help buy support for his regime. At the same time, he has directed the substantial funds he obtains from illegal exports of oil and product to fund both his military forces and his smuggling efforts in support of his conventional forces and missile and CBRN programs. While significant political opposition remains, Saddam has been able to restore many of the incentives and payments he uses to win support for his regime. In addition, he has effectively used his propaganda war to exploit Iraqi nationalism." Smart sanctions" have failed to do anything to halt smuggling across the Syrian, Turkish, and Jordanian borders, and UN import controls and inspection across these borders is steadily less effective.

Iraq Faces Continued Containment with "Effective" Inspection.

While Saddam Hussein may find many aspects of his current strategic situation to be frustrating, he may well feel that he is winning the “war of sanctions” and that time is on his side. The two major exceptions to such a conclusion are the continued threat of direct US military intervention to overthrow his regime, and the broad range of outside pressures to restore UN inspections under UNMOVIC.

The Iraqi regime clearly prefers to avoid inspection, which may be a good measure of its potential effectiveness. In fact, the continued threat of such inspection may sharply constrain Iraq’s ability to carry out the more visible and detectable aspects of missile and CBRN development. It also requires Iraq to maintain highly dispersed, highly mobile, and duplicative programs organized into cell-like structures. Iraq has never been efficient in managing any large, complex program, and the constraints on its program almost certainly add serious problems in many areas.

If Iraq is forced to accept inspections by UNMOVIC, as a consequence of threatened US military action or as a result of other political factors, it will do every possible to keep such an effort from being effective and to use it as a political weapon to obtain UN certification that it no longer is proliferating. It will systematically lie, cheat, posture, and resist just as it did with UNSCOM. It will also put intense diplomatic pressure on the UN and friendly states to avoid intrusive inspections, attempt to limit their scope, and encourage a rush to some kind of judgment, freeing itself of effective further inspections. It will draw on more than a decade of expertise in cheating inspection while most inspectors will be new and many will have to consider their nation’s reservations about aggressively pursuing inspections.

Much will depend on the courage, skill, and determination of the inspectors and their leadership. The challenge of conducting effective inspections will be vastly complicated by the fact that Iraq has had four uninterrupted years to not only destroy the chain of evidence going back to its efforts before and during the Gulf War, but also create new programs with no trace to past programs in terms of location and personnel.

These problems will be compounded by additional challenges. The UNSCOM effort was never voluntary. It only worked through constant challenge and coercion, and because UNSCOM reported directly to the Security Council and could not be paralyzed by the political inertia and divisions of the regular UN bureaucracy. UNSCOM could operate without prior warning and any Iraqi agreement as to what to inspect, what technology could be inspected, and what intelligence could be used. It had its own helicopter support and vehicles, and its movements were backed by the constant and credible threat of force.

UNSCOM also could draw freely on national intelligence, particularly from the US and Europe. This allowed inspection to operate in the context of national intelligence on exports and arms transfers, indirect access to US national technical means (NTM) and signals intelligence, and data on specific inspection targets – including NTM and U-2 imagery on mobile Iraqi activity. National sources could provide data on weapons technology unavailable to UN inspectors, and provide intelligence feedback on how well the inspection effort was proceeding.

The UN may find it difficult, if not impossible, to trace most Iraqi activity, and may find that Iraq has created a sophisticated set of decoys, false trails, and false compliance efforts. At

the same time, Iraq cannot be sure of what various intelligence agencies know, or that it will not have new problems with defectors. It is all too possible that the end result of inspections could be a new set of armed clashes and a repetition of all of the frustrations of the previous International Atomic Energy Agency (IAEA)/UNSCOM effort. The worst case would be a weak effort by the UNMOVIC, and a politically motivated certification that Iraq had complied with the terms of the ceasefire.

In short, resuming inspection does not mean such inspection will be effective, and the “war of sanctions” will go on with or without UN inspection. More also is involved than the detection of Iraqi missile and CBRN production and deployment efforts. Saddam Hussein’s Iraq has a long history of being able to go further and prepare for significant military action without the international community having or heeding strategic warning. Its preparations to attack Iran achieved considerable surprise. Its use of chemical weapons came as a surprise as did its success in deployed extended range Scuds. IAEA inspection served little purpose before the Gulf War, and the Gulf War achieved strategic surprise in spite of the fact Iraqi preparations were detected weeks in advance. During the Gulf War, Iraq achieved some degree of surprise in terms of its attack on Khafji, the scale of its missile attacks, and burning of the Kuwaiti oilfields in spite of a massive Coalition surveillance and intelligence effort.

The Continuing Low-Level Air War Over the “No Fly Zones”

Saddam Hussein has long demonstrated that Iraq will continue to resist the US-UK enforcement of the two “no fly zones,” and that Iraq is seeking a victory by downing a US or British aircraft. The US-UK enforcement of the two “no fly zones” is a key factor in maintaining the containment of Iraq and the ability of the UN to enforce sanctions. Iraq can be expected to oppose it by any possible military and political means. Saddam would see the ability to prevent or limit the enforcement of either or both “no fly zones” as a major victory, and one that sharply undermined the credibility of containment and US threats to overthrow his regime.

Iraq is severely constrained in what it can do militarily, because of its inability to import new major air defense weapons and sensors and its inability to obtain overt support in modernizing its C⁴I/BM program. It has, however, developed a steadily better ability to use multiple radars and pop up tactics to reduce the effectiveness of US-UK countermeasures; has learned to limit the effectiveness of anti-radiation missiles; has developed visible tracking systems; has improved its use of decoys and dispersal; has improved its use of urban cover and human shields; and has turned exaggerated claims about civilian casualties and collateral damage into a fine art.

Iraq will claim any US or British aircraft loss over Iraq as a major victory, and it will be seen as one in the region almost regardless of the US-UK military response. Iraq also has sufficient air defense assets so that it appears to “win” every time another clash occurs, simply because of its ability to ride out the US-UK military response and exploit new claims of collateral damage and civilian casualties.

Major US-UK strikes in response to any Iraq success could turn such an event into a different story, but have to be carefully structured so they have a clear provocation, produce serious damage to Iraq’s military forces and regime, and minimize collateral damage and civilian

casualties. Even the major strikes that took place during Desert Fox were a failure in this regard, and the “pinprick” response now taking place has little or no deterrent effect.

Iraq Becomes More Confident Over Time

The “timelines” and forces shaping Iraq’s current strategic position remain unclear. Iraq is not necessarily winning. It will, however, continue to covertly develop its missile and CBRN programs to the maximum extent it feels it can get away with, and will attempt to rebuild its conventional strength to the extent it can smuggle in arms, spare parts, and munitions -- or can eventually ease sanctions. Iraq may or may not be able to restore its military strength and strategic position to the point where it can actively play the role of a revanchist state. A reinvasion of Kuwait seems less probable, although a ruthless suppression of the Kurdish security zone seems a near certainty for a “confident” Iraq under Saddam Hussein.

Iraqi revanchist actions, through covert operations and the support of terrorist or extremist groups, seem all too possible. A systematic exploitation of the tensions and backlash from the Second Intifada is already underway.

Similarly, Iraq is likely to engage in “wars of intimidation,” and use its new confidence and growing CBRN capabilities to put pressure on the Southern Gulf states over oil policy and quotas, and their willingness to support the US and British military presence and power projection capabilities. A “confident” Saddam Hussein is also likely to pressure Turkey to end its support for the Northern No Fly Zone, ease its enforcement of the UN sanctions, and play a far more active role in trying to win Arab support through support of the Second Intifada. The resulting Iraqi-Syrian-Palestinian, and possible Jordanian, cooperation could pose a growing security threat to the region.

Unforeseen Events thrust Iraq into Another Confrontation with the Kurds in the North and/or the Shi’ites in the South

Iraq could win any future conflict with its Kurdish or Shi’ite populations, and would take major risks to do so if it felt any serious attempt was being made to use them as a sanctuary for building up meaningful opposition military capabilities or staging facilities for a US presence that was not part of a major US military effort to secure the area involved.

Kurdish Contingencies

At this point in time, Iraq has little incentive to conduct military operations against the Kurdish security zone. The Kurds remain divided and comparatively isolated. Consequently, they act as a buffer against any serious Turkish ambitions in Iraq; however, Iraq can count on Turkey to intervene if they do develop a more effective military threat. Their “sanctuary” status helps Iraq maintain the flow of uncontrolled oil and product sales, and Iraq may well calculate that it can ride out international interest in the Kurds and forcibly reintegrate them back into Iraq in the future.

The Kurds, in turn, have only limited reason to try to fight Iraq unless they can be absolutely sure of both victory and the political aftermath. They have good reason to feel that the

West has betrayed them in the past, they no have more autonomy than in any other time in their recent history, and US and British aircraft help give them security by patrolling the “Northern No Fly Zone”

The Kurds have made real progress in creating a modern enclave in the zone, funded in part by oil for food money and in part by smuggling.²¹ They are, however, still divided between two major factions led by quasi-warlords. The first faction is the Kurdistan Democratic Party (KDP), led by Massoud Barzani, and headquartered in Erbil. The second is the Patriotic Union of Kurdistan (PUK), led by Jalal Talibani, and headquartered in Sulaimaniya. There are also still some Turkish Kurds operating in the area, and some Islamist and tribal factions.

On paper, the Kurdish Democratic Party (KDP) claims a strength of 15,000, plus 25,000 tribesmen, armed with mortars, automatic weapons, artillery, multiple rocket launchers (MRLs), and some SA-7s. The Patriotic Union of Kurdistan (PUK) claims strength of 10,000 plus 22,000 tribesmen, armed with automatic weapons, mortars, some artillery, AA guns, and some SA-7s. The Socialist Party of Kurdistan claims several hundred fighters.²² There are also armed elements of the Jund al-Islam, a Kurdish Islamist extremist movement affiliated with Al Qaida that has been involved in clashes with the PUK.²³

Cosmetic efforts have been made to integrate some KDP and PUK forces into an integrated force, but these efforts have made limited progress. While the Kurds can be effective mountain fighters in small, defensive engagements, but they so far have only developed symbolic military capabilities. Worse, the KDP and PUK have demonstrated in the past that that their paramilitary forces are not particularly competent even in fighting each other. It would take years and major reequipment to give Kurdish forces serious military capabilities.

Now and indefinitely into the future, Iraqi military forces could rapidly reenter the Kurdish security zone and defeat the Kurdish factions in settled areas in a matter of days. Kurdish guerrillas might survive in some mountainous areas, or as dispersed units hiding in populated areas, but Iraq’s ability to use helicopter mobility and airpower, plus long-range artillery, should be as decisive over time as it has been in the past. The main barrier to such an operation is the risk that the US will intervene decisively with airpower, and there are limits to the deterrent value of this risk. Iraq can probably provoke further intra-Kurdish fighting as an excuse, or find some faction to invite it to intervene.

The Iraqi leadership would probably be willing to absorb serious damage and losses from the air if they felt that the Kurdish leaders were willing to see the Kurdish area used as an enclave for building up armed opposition forces, or to prevent any US staging in the security zone. If this seemed possible, Turkey and the Arab world would probably not support US military action if the provocation was any unilateral formal Kurdish declaration of autonomy, and would oppose such action if the Kurds declared independence. Kurdish civilians can be used as shelter or hostages, or to put massive refugee pressure on Turkey.

Shi’ite Contingencies

Saddam Hussein’s regime has already won the battle in the south, and has largely eliminated the marsh areas as a sanctuary. Iraqi security forces have been strengthened in

virtually every area with hostile elements, and a decade of systematic arrests and purges, mixed with bribes and cooption, have further weakened Shi'ite resistance. The romanticized picture of the previous Shi'ite uprisings disguises the fact that they were smaller than is generally reported, that helicopters were not needed to suppress them, and that some Shi'ite security forces and military turned against them when they took on a religious character and when the Iranian-backed opposition became involved.

Iranian-backed guerrillas in the forces of the Supreme Council for Islamic Resistance in Iraq (SCIRI) – or Supreme Assembly of the Islamic Revolution in Iraq (SAIRI) – have regular combat forces based in Iran. This force is variously estimated at 4,000-10,000 men and has artillery and armor, although it was cut to pieces in a matter of minutes when it encountered regular Iraqi forces during the Iran-Iraq War. The Ayatollah Mohammed Bakr Hakim who leads SAIRI is based in Tehran, and SAIRI's forces have an extensive intelligence service, and also carry out guerilla operations in Iraq. They can still carry out small operations sporadically, and there is still serious Shi'ite political opposition to the regime in some areas.

Although SAIRI is Iranian-backed, and does not support any US ground intervention in Iraq, it has approached the US informally for air support. At least some Iranian officials also seem to be more open to Iranian-SAIRI alliances with other opposition groups and powers – although the Iranian government still officially opposes any form of US military intervention and Iranian hard-liners are concerned that the US might see its concern “axis of evil” as a reason to use intervention in Iraq to “encircle” Iran and as the first step in a similar intervention in Iran.²⁴

Many of the other leaders and defectors in the Iraq opposition movements based in the West are also Shi'ite, but the claims of such movements to actually have carried out attacks and sabotage in the south often seem grossly exaggerated or spurious.

Even SAIRI's capabilities seem to be declining. Iraqi security forces not only dominate Shi'ite areas, they also can operate with near total freedom of operation. The US has never tried to use airpower to protect the Shi'ites in the south, and Iraqi security forces are now so embedded in Shi'ite towns and areas, it is doubtful that anything other than a massive air war with major strikes in towns and populated areas could begin to be effective in “liberating” Shi'ite areas.

Reaction to a US-led Coalition

This situation would probably be very different, however, if the US demonstrated that some US-led coalition was capable of decisively defeating Iraqi ground and security forces, and US-led ground forces were prepared to occupy the country. Under these conditions, Iraqi main force units would be tied up in combat with the US-led coalition forces, the Kurds might rush to join the coalition to establish political influence after the ceasefire, and Shi'ite uprisings might well take place in areas where the security forces were felt to be weak or isolated. Various Shi'ite factions might compete to try to control populated areas, and Iranian-backed Shi'ite forces might infiltrate into Iraq, or try to carry out more conventional military operations in another effort to establish credibility and influence after the defeat of the Saddam Hussein regime. (SCIRI forces claim to have some 4,000 troops in Iran equipped as a light mechanized brigade equivalent. In practice, they amount to a reinforced battalion equivalent at most.)

One key point: Neither the Kurds nor the Shi'ites seem likely to respond to such an attack by deliberately dividing Iraq. Iraqi Kurds would face a future with a largely hostile Turkey and Iraq on their borders and little effective international support and sympathy. They have much more to gain from autonomy and influence than becoming a vulnerable mini-state. There might be some infighting, but not major civil war.

Similarly, most Iraqi Shi'ites are Arabs and nationalists, not separatists. Many have fought Iran in the past, and most probably have little interest in being tied to Iranian-backed movements. They too may struggle for influence and power within a post-Saddam Iraq, and there could be serious infighting. This, however, is very different from seeking to be part of a separate country.

If there is a risk, it would lie more in a US failure to focus on conducting a large enough operation to maintain stability throughout Iraq, along with a failure to develop an effective coalition effort for post-conflict nation-building. As Afghanistan has shown, the fact that the Bush Administration may be embarrassed by the term "nation building" represents a past intellectual failure on the part of some of its senior officials that they simply need to acknowledge and then correct. Similarly, those US military officers who cannot see that conflict termination and post-conflict reconstruction are a vital part of any grand strategy are simply incompetent individuals that should resign or be removed from command.

Iraq versus Iran

Neither Iran nor Iraq is in a good position to resume a major war. Iran lost 40-60% of its major land force equipment during the climactic battles of the Iran-Iraq War in 1988. It has, however, recovered from its defeat by Iraq, and today has a comparatively large number of forces. Iran now has armed forces consisting of some 513,000 men, plus 200,000 low-graded reserves. It has an army with 4 corps, 4 armored divisions, 6 infantry divisions, 2 commando and special forces divisions, and 16-20 small Iranian Revolutionary Guard Corp (IRGC) units. Like Iraq, Iran deploys substantial portions of its land forces near the Iran-Iraq border, and sees operations in the border area as a major priority.

The Iranian army and IRGC have a total of around 450,000 men – including roughly 125,000 Revolutionary Guards, and an inventory of some 1,135 main battle tanks, 1,200 other armored vehicles, and 1,950 towed, 290 self-propelled, and 665+ MRL major artillery weapons. The army has large numbers of mortars, 1,700 AA guns, and AT-3, AT-5, and TOW anti-tank guided weapons. It has UAVs, 100 AH-1J attack helicopters, and over 400 utility and lift helicopters; the readiness of these aircraft, however, is low.²⁵

Iran's 45,000-man air force has over 280 combat aircraft with potential operational status. Its has about 150 aging and worn US fighters, which include 66 F-4D/E and 25 F-14A/B that are about 60% serviceable. It has 24 Su-24 and 30 MiG-29 Soviet-made fighters and Chinese F-7Ms. These are believed to be about 80% serviceable. It has 14 RF-4E reconnaissance aircraft, and 5 P-3F and 5 C-130H-MR maritime reconnaissance aircraft. It has significant transport aircraft and limited tanker capability. Its land-based surface-to-air missile defenses are an awkward blend of US-made sensors and 100 IHawk missile launchers and Russian/Chinese-made sensors, and 10 SA-5, 45 HQ-21, 30 Rapier, 15 Tigercat, and an unknown number of FM-80 missile launchers.

Unlike Iraq, Iran has significant naval forces, with 18,000 regulars and 20,000 naval guards. Over the last decade, it has made major improvements in its ability to threaten maritime traffic through the Gulf, and its ability to conduct unconventional warfare. It has five submarines, 3 aging missile frigates, and 2 aging corvettes. Additionally, it has 10 Kaman missile patrol boats, and 10 Houdong missile patrol boats, most of which are equipped with C-802 anti-ship missiles. Other Iranian naval assets include two minelayers and five mine countermeasure vessels, as well as large stocks of mines. It has anti-submarine warfare (ASW) and mine warfare helicopters, and large stocks of land-based anti-ship missiles, including Silkworms. Further, the Iranian air force can deliver C-801 anti-ship missiles.

Iran is seeking to acquire modern Soviet combat aircraft and modern surface-to-air missiles, like the Russian S-300 series. It has 120 export versions of the T-72 and 440 BMPs, and is seeking to import or produce more modern armor. Iran has not, however, been able to offset the obsolescence and wear of its overall inventory of armor, ships, and aircraft. Additionally, Iran has not been able to modernize key aspects of its military capabilities, such as airborne sensors and C⁴I/BM, electronic warfare, land-based air defense integration, beyond-visual-range air-to-air combat, night warfare capabilities, stand-off attack capability, armored sensors and fire control systems, artillery mobility and battle management, combat ship systems integration, etc.

Iran has significant numbers of Scud missiles, extended range North Korean Scuds, Chinese CSS-8 missiles, and is developing a longer-range Shehab 3 missile. It has extensive stocks of chemical weapons, including mustard and nerve gas, and possibly blood agents. While it has bought extensive equipment for biological warfare, its capabilities remain unclear. Iran has had a nuclear weapons program since the time of the Shah, but does not seem to have any active enrichment capabilities. It can probably design efficient implosion weapons and produce every component except for the fissile material.

The end result is a mix of forces that closely approximates those of Iraq. Today, neither nation has a decisive edge over the other, or seems likely to acquire such an edge without major new arms imports or some substantial breakthrough in CBRN warfare capability. As a result, any new conflict between Iran and Iraq is likely to be a bloody stalemate in the border area, similar to the Iran-Iraq War. Neither side seems likely to risk such a war without political provocation of a kind that currently does not exist.

One case that might change this situation would be some kind of major uprising in Iraq's Shi'ite areas following a coup or the fall of Saddam Hussein. If Iraq suddenly seemed vulnerable, and its army seemed unable to resist, Iran might risk intervening in support of Iraq's Shi'ites. A power vacuum or very weak regime in Iraq might also act as an incentive for Iranian military action.

Iran, however, is too weak to challenge the US or a US-led coalition in the air, and would be highly vulnerable to US air and missile attacks. It also would experience substantial problems with projecting ground forces deep into Iraq, and giving them suitable support and sustainment. As a result, Iran might protest major US-led military intervention in Iraq but is unlikely to take the risk of using major military forces to either prevent such intervention or to try to seize some share of Iraq. Iran may be a strong military power by Gulf standards, but it is a weak one by global standards and those of the US.

Finally, the Iranian-Iraqi military balance appears quite stable at this point, and there is no sign that either state will achieve a decisive edge over the other in the near to mid-term. The fear that as a result of continued sanctions Iraq will become relatively weaker than Iran, has no military merit, and Iran is not strong enough to exploit Iraq's weakness in any contingency where a US-led coalition maintains a major military presence inside Iraq.

Iraq Risks A Desperate Attack on Kuwait

It seems unlikely that Iraq would risk any further attack on Kuwait and the Southern Gulf, as long as the US maintains a major military presence in the region; indeed, the Iraqi military threat to Kuwait and Saudi Arabia should not be exaggerated. Nevertheless, Iraq does have some near-term contingency capabilities that might allow it to exploit the limits of Saudi defenses, in spite of US capabilities. Iraq's land forces still retain significant warfighting capabilities, and much of the force structure that made Iraq the dominant military power in the Gulf after its victory over Iran. Iraqi forces can still seize Kuwait in a matter of days, or occupy part of Saudi Arabia's Eastern Province, *if* they do not face immediate opposition from US, Kuwaiti, and Saudi forces.

Iraq has five regular divisions located in the southern border region north of Kuwait, three of which are relatively combat-ready. There are also two Republican Guards divisions that could be rapidly deployed to support the three more capable regular divisions in an attack on Kuwait, a scenario that USCENTCOM has labeled the "Basra breakout."²⁶

USCENTCOM and US experts indicate that Iraq could assemble and deploy five heavy divisions south into Kuwait in a matter of days. It has a total of five Republican Guards divisions within 140 kilometers of Kuwait. Iraqi divisions now have an authorized strength of about 10,000 men. About half of the Iraqi army's 23 divisions had manning levels of around 8,000 men and "a fair state of readiness." Republican Guards divisions have an average of around 8,000 to 10,000 men. Brigades average around 2,500 men -- the size of a large US battalion.

Iraq would encounter major problems in assembling and deploying these forces into any kind of cohesive offensive, but Kuwait would be a potential area of weakness in any defense of the Saudi border area by a Saudi US-led coalition. The Saudi-Iraqi border area does not have any major cities or oil facilities, and Iraq would have to invade deep into the desert to reach any major Saudi target. An Iraqi seizure of Kuwait, however, would put Iraqi forces on the Saudi border at a point much nearer Saudi Arabia's critical oil facilities and population centers, and astride major roads into Saudi Arabia.

USCENTCOM indicates that Kuwait could only deploy less than two brigade equivalent battalions to defend its territory, and Saudi Arabia would take days to deploy even one heavy brigade into areas north of Kuwait City. The tyranny of geography, Kuwait's small size, and Saudi Arabia's widely dispersed army would give Iraq an advantage in land combat in any sudden or surprise attack. The failure of Kuwait and Saudi Arabia to make more than limited cooperative defense efforts compounds the problem, as does Saudi Arabia's poor performance in modernizing its land forces and giving its air force offensive capability.

Kuwait dreamed of a 12-brigade force after the Gulf War, but it only has two under-strength active brigades and two reserve brigades. Its land forces total only 11,000 personnel, and this total includes 1,600 foreign contract personnel, most of whom are non-combatants. The total manpower of the Kuwaiti armed forces, including the air force and navy, equal about one US brigade "slice" (combat manpower plus support). The Kuwaiti army has an active tank strength of only about 75 M-84s (Yugoslav T-72s) and 174 M-1A2s.

Saudi Arabia also has important weaknesses. The Saudi army has reverted to a static defensive force that has limited effectiveness above the company and battalion level. Although it claims to have 70,000 full time regulars in the army, plus 57,000 active members of the National Guard, actual manning levels are significantly lower. Some of its M-1A2 tanks are still in storage, plus about 145 of its 295 obsolescent AMX-30s. As a result, Saudi Arabia relies heavily on its 450 M-60A3s. This is still a significant amount of armor, but it is dispersed over much of the Kingdom, and Saudi Arabia lacks the training, manpower quality, sustainability, and C⁴I/SR capabilities for effective, aggressive maneuver warfare and forward defense.

A force of five Iraqi divisions would compare favorably with four Kuwaiti brigades. However, only one of those brigades would be combat-ready, and total forward-deployed US strength normally does not include a single forward-deployed land brigade. The Saudi forces at Hafr al Batin are at most the equivalent of two combat-effective brigades, which would probably take two weeks to fully deploy forward to the Kuwait and Saudi borders in sustainable, combat-ready form. The so-called Gulf Cooperation Council (GCC) rapid deployment force is largely a political faction with no meaningful real-world combat capability against Iraqi heavy divisions. Moreover, the new agreements that were signed in 2000 and 2001 to strengthen this force will do nothing substantive to change what is little more than a military façade.

Delays in US power projection capability would also inevitably limit US ability to exploit its advantages in military technology and the land elements of the "revolution in military affairs." The US has elements of one heavy brigade pre-positioned in Kuwait, but it takes at least 14-21 days to fully man, deploy, and sustain this brigade. The US Army can deploy another two relatively light brigades in fully combat ready form in 18-30 days, but the brigade set pre-positioned in Qatar would take several weeks to deploy to the Kuwaiti border area, and the division support set propositioned in Qatar could not deploy in fully combat effective form until M+27 to M+35. The US Army brigade pre-positioned on ships near Diego Garcia would take nearly a month to deploy in sustainable combat form.

The US Marine Corps has another light division equivalent and air wing that it could deploy as a Marine Expeditionary Force, but it two would take at least three weeks to fully deploy. It would also lack heavy armor and artillery. Some aspects of Marine Corps readiness have been seriously under-funded in recent years. While this is being corrected, it might still affect some aspects of combat capability.

As a result, a Saudi/US-led coalition's ability to deal with a sudden Iraqi attack on Kuwait is likely to depend on US ability to mass offensive air and missile power and use it immediately. The US would need to act against Iraq the moment major troop movements began, and do so without first seeking to win air superiority or air supremacy. It will also depend on US willingness and ability to couple strikes against Iraqi leadership and strategic targets to this

offensive, in an effort to force Iraq to halt its offensive, as well as US ability to deter, defend, and retaliate against any Iraqi use of weapons of mass destruction.

Much will still depend on Saudi Arabia and the other Gulf states. To be fully effective, the US will require the full support of Saudi Arabia in committing its army and air force to the defense of Kuwait and the Saudi border area. It will depend on the Kingdom, Bahrain, and the other Southern Gulf countries to assist in the deployment and basing of US forces in the region. Additionally, the US will also require immediate Kuwaiti willingness to allow the US and Saudi Arabia to employ force against Iraq before its forces can deploy to the Kuwaiti border area.

Even then, preventing an Iraqi occupation of Kuwait City could be a difficult task if Iraq is willing to absorb very high levels of damage done by US and allied air and missile power. In a worst case scenario, a Saudi/US-led coalition could be confronted with an asymmetric war in which Iraq ruthlessly exploited the suffering of the Kuwaiti people to force a halt to US military action. Kuwaiti government security experts have, in fact, postulated a far worse case in which Iraq uses overt or covert attacks with biological weapons to effectively destroy Kuwait as a nation and create new facts on the ground.

As a result, Iraqi land forces might penetrate into and seize Kuwait City the city, and take the Kuwaiti population as a hostage. USCENTCOM experts privately speculate that the US would at best have a 50-50 chance of preventing Iraq from occupying Kuwait City. The only way that Iraqi forces could then be dislodged would be through a combination of another land build up in Saudi Arabia by the US and allied forces, and a massive strategic/interdiction air campaign against targets on Iraqi territory.

The dilemma in any "second liberation" of Kuwait would then be US, Saudi, and Kuwaiti willingness to act in the face of potential massacres of Kuwaiti civilians, versus the willingness of an Iraqi regime to accept massive damage to Iraq. It seems likely that the US and Saudi Arabia would show the necessary ruthlessness if the Kuwaiti government supported such action. Oil is too strategically important to cede such a victory to a leader like Saddam Hussein.

Defending Kuwait will become an increasingly "close run thing" if Iraq can escape the effect of sanctions and improve its ability to modernize and rebuild its war fighting capability. There are a number of ways in which Iraq might then increase the challenge it could pose to US capabilities and the "revolution in military affairs," without acquiring similar military technologies and capabilities:

- Iraq may somehow obtain nuclear weapons, or demonstrate the possession of highly lethal biological weapons.
- The US might be forced to reduce its forward presence and readiness in the Gulf to the point where it could not rapidly deploy air power, and/or reduce its overall power projection capabilities. This could occur either as a result of US domestic political and funding issues, or as a consequence of added Iranian and Iraqi success in their diplomatic campaigns to limit the US role in the region.

- Iraq may choose a more limited and "acceptable" objective, like restoring its pre-Gulf War border or demanding access to Bubiyan, Warbah, the Kwar Abdullah, and the Gulf. This might make it harder for the US to obtain support from its other regional allies and/or nations outside the Gulf.
- Improvements in relations between Iraq and Saudi Arabia might create a situation where Saudi Arabia may not immediately and fully support US action and commit its own forces.
- The government of Kuwait may feel it faces so serious an increase in the Iraqi threat that it would refuse to accept the cost of continuing to fight in the face of ruthless Iraqi action against a "hostage" Kuwaiti people.

Iraq's Offensive Capabilities in Other Contingencies

The situation would be far more favorable to a Saudi/US-led coalition in any contingency that did not involve Kuwait. Iraq has almost none of the assets necessary to win a naval-air battle against US forces in the Gulf, and has no prospect of acquiring these assets in the foreseeable future. It would have to rebuild, modernize, and massively expand both its regular navy and air force to levels of strength and capability it simply cannot hope to achieve for the next half-decade. Alternatively, Iraq could develop its capabilities to deliver weapons of mass destruction to the point where it could support its conventional military capabilities with a threat that might seriously inhibit US military action, and/or the willingness of Southern Gulf states to support the US and provide air and naval facilities.

Unlike Iran, Iraq cannot conduct meaningful surface ship, naval air force, and amphibious operations. Currently, the Iraqi navy can only conduct limited mine warfare and land-based anti-ship missile attacks, and surprise raids on off-shore facilities. Its air force may be able to conduct limited anti-ship missile attacks using its Mirage F-1s, but would have to find a permissive environment to survive. Iraqi Mirage F-1s burdened with the AM-39 Exocet would be unlikely to survive Kuwaiti, Saudi, or Iranian air defenses, without a level of air escort capability that Iraq cannot currently provide.

As long as the US has the ability to use its air and missile power to inflict enough strategic damage on Iraq to create a massive deterrent to any Iraqi escalation to chemical or biological weapons, and as long as the US backs these capabilities with the ultimate threat of US theater nuclear escalation, Iraq has little ability to intimidate its neighbors into accepting such operations. There is little near-term prospect that Iraq will develop enough power projection capability -- and supporting power from its navy, air force, and weapons of mass destruction -- to win any conflict in the Southern Gulf in which it does not attack by land into Kuwait or across the Saudi border. The only exception would seem to be a case in which it operated in support of a coup or uprising, or when Iraqi volunteers operated in Southern Yemen in 1994. Any Iraqi attack on a Southern Gulf state is also the contingency most likely to unite the US and the Southern Gulf states, and would likely ensure European and other support for a strong US-Southern Gulf response.

This does not mean that Iraqi air and/or naval forces could not score some gains from a sudden, well-planned raid in the Gulf, or challenge US military capabilities in some ways. Iraq

could not sustain any initial success, however, and would probably accomplish nothing more than provoking a US, Southern Gulf, or Iranian reaction that would far offset any advantages which it could gain. The only exception might be a proxy unconventional or terrorist attack that would allow Iraq to preserve some degree of plausible deniability.

Iraq may also be able to achieve some of its objectives through intimidation and/or direct and indirect threats. Iraq's ability to provide such intimidation is now limited, but Iraq certainly understands that asymmetric warfare is a potential counter to US superiority and the "revolution in military affairs," and it will seek to improve its capabilities once UN sanctions are lifted. In many cases, Iraq's neighbors may be willing to increasingly accommodate Iraq to some degree. This is particularly true of those states that see Iraq as a more serious threat -- like Kuwait and Saudi Arabia.

Much will depend upon regional perceptions of the long-term resolve of the US, the ability of the Southern Gulf states to avoid major divisions, and the willingness of the Southern Gulf states to show that they will support a firm US response to Iraq, even at some risk. Much will also depend on the ability of Iraq's leadership to set achievable demands and avoid open confrontation. In broad terms, it seems likely that Iraq's ability to intimidate will slowly improve over time, but there is no way to predict how quickly or by how much.

Iraq and Weapons of Mass Destruction

Iraq has a much more serious history of exploiting proliferation than Iran. It has seen proliferation as a counter to conventional superiority since the late 1960s. It sought weapons of mass destruction long before the Gulf War showed it what the "revolution in military affairs" and US conventional superiority could accomplish. Since 1991, Iraq has been unable to obtain significant imports of conventional weapons, and it is incapable of producing its own. As a result, it is scarcely surprising that Iraq sees proliferation as its key potential method of countering the US advantage in conventional forces and has been willing to pursue such options in the face of massive economic costs, UNSCOM and IAEA efforts to destroy its remaining capabilities, and the extension of UN sanctions.

The US, Britain, and a number of other nations see Iraq's continuing efforts to acquire weapons of mass destruction as the most serious threat posed by the regime of Saddam Hussein. For ten years they have sought to use UN sanctions to put an end of Iraqi's activities, and the US repeatedly has struck at Iraq since 1991 for violating the ceasefire and continuing to proliferate. The US and Britain may well eventually invade Iraq to remove the regime of Saddam Hussein largely to put an end to Iraqi proliferation and the threat it poses to an area with more than 60% of the world's proven oil reserves.

Rather than a possible contingency, this struggle over proliferation might best be described as a continuing low-intensity conflict that could suddenly become part of a major war with only limited warning. Desert Fox has already shown that the US and Britain will use major amounts of force to deal with Iraqi violations of the terms of the ceasefire in the Gulf War. Other struggles -- such as the one over the "no fly" zones -- could escalate to include Iraqi CBRN targets. While a US-led invasion of Iraq to remove the regime of Saddam Hussein may raise the

most serious threat of extensive Iraqi use of CBRN weapons, it is scarcely the only contingency that could do so.

Iraqi Missile Developments and Possible Capabilities

Iraq continues to work on its Samoud ballistic missile and other similar systems that supposedly have a range of less than 150 kilometers -- although none of these systems are believed to be deployed and lack the range for effective strikes on most foreign cities and facilities. It is likely to have at least 12-25 surviving Scud missile assemblies, however, and could have in excess of 40.

UNSCOM inspectors note that UNSCOM's claims to have identified 817 out of 819 Scud imports are extremely soft and may well have an error of 60 weapons, and that no accurate count exists of Iraqi produced components. This could give Iraq a range of 20-80 operational Scuds and Iraq has shown in the past that it can produce its own TEL launchers. Iraq also continues development work on shorter range missiles since missiles with ranges of 150-kilometers or less are permitted under the terms of the ceasefire.²⁷ UNSCOM made it clear in all of its reports up through the final expulsion of its inspectors from Iraq that Iraq was concealing the nature of its chemical and biological weapons effort and had systematically lied in every major disclosure report it had submitted to UNSCOM from the start to the end of the inspection effort.

Recent US intelligence reporting provides the following assessment of Iraq's capabilities in this area. A CIA report in August 2000 summarized the state of Iraqi CBRN and missile development as follows,

- Since the Gulf war, Iraq has rebuilt key portions of its chemical production infrastructure for industrial and commercial use, as well as its missile production facilities. It has attempted to purchase numerous dual-use items for, or under the guise of, legitimate civilian use. This equipment—in principle subject to UN scrutiny—also could be diverted for WMD purposes. Since the suspension of UN inspections in December 1998, the risk of diversion has increased.
- Following Desert Fox, Baghdad again instituted a reconstruction effort on those facilities destroyed by the US bombing, to include several critical missile production complexes and former dual-use CW production facilities. In addition, it appears to be installing or repairing dual-use equipment at CW-related facilities. Some of these facilities could be converted fairly quickly for production of CW agents.
- Iraq continues to pursue development of two SRBM systems that are not prohibited by the United Nations: the liquid-propellant Al-Samoud, and the solid-propellant Ababil-100. The Al-Samoud is essentially a scaled-down Scud, and the program allows Baghdad to develop technological improvements that could be applied to a longer-range missile program. We believe that the Al-Samoud missile, as designed, is capable of exceeding the UN-permitted 150-km-range restriction with a potential operational range of about 180 kilometers. Personnel previously involved with the Condor II/Badr-2000 missile—which was largely destroyed during the Gulf war and eliminated by UNSCOM—are

working on the Ababil-100 program. If economic sanctions against Iraq were lifted, Baghdad probably would attempt to convert these efforts into longer-range missile systems, regardless of continuing UN monitoring and continuing restrictions on WMD and long-range missile programs.

A Department of Defense report in January 2001 reported that,

- Iraq likely retains a limited number of launchers and SCUD-variant SRBMs capable of striking its neighbors, as well as the components and manufacturing means to assemble and produce others, anticipating the reestablishment of a long-range ballistic missile force sometime in the future. Baghdad likely also has warheads capable of delivering chemical or biological agents. While Iraq's missile production infrastructure was damaged during the December 1998 strikes, Iraq retains domestic expertise and sufficient infrastructure to support most missile component production, with the exception of a few critical subelements.
- During 1999, Iraq continued to work on the two short-range ballistic missile systems that fall within the 150-kilometer range restriction imposed by the UN: the liquid-propellant Al Samoud and the solid-propellant Ababil-100. The Al-Samoud is essentially a scaled-down SCUD, and work on it allows Baghdad to develop technological capabilities that could be applied to a longer-range missile program. We believe that the Al Samoud missile, as designed by the Iraqis, has an inherent potential to exceed the 150-kilometers range restriction imposed under UNSCR 687.
- Iraqi personnel involved with pre-Desert Storm ballistic missile efforts are working on the Ababil-100 SRBM program. Once economic sanctions against Iraq are lifted, unless restricted by future UN monitoring, Baghdad probably will begin converting these efforts into longer-range missile systems. Despite the damage done to Iraq's missile infrastructure during the Gulf War, Desert Fox, and subsequent UNSCOM activities, Iraq may have ambitions for longer-range missiles, including an ICBM.
- Iraq also has a variety of fighter aircraft, helicopters, artillery, and rockets available as potential means of delivery for NBC weapons, although their operational status is questionable due to the cumulative effects of the UN arms embargo. However, Iraq has continued to work on its UAV program, which involves converting L-29 jet trainer aircraft originally acquired from Eastern Europe. These modified and refurbished L-29s may be intended for the delivery of chemical or biological agents. In the future, Iraq may try to use its research and development infrastructure to produce its own UAVs and cruise missiles or, should the UN arms embargo be lifted, it could try to purchase cruise missiles.

A CIA report, issued in January 2002 stated that military parade in December 2000 showcased Al Samoud missiles on new transporter-erector-launchers (TELs). The liquid-propellant Al-Samoud SRBM probably will be deployed soon. It projected future Iraqi capabilities as follows:

- Iraq is likely to use its experience with Scud technology to resume production of the pre-Gulf war 650-km-range Al Hussein, the 900-km-range Al Abbas, or other Scud variants, and it could explore clustering and staging options to reach more distant targets. Iraq *could* resume Scud-variant production—with foreign assistance—quickly after UN prohibitions ended.
- With substantial foreign assistance, Baghdad *could* flight-test a domestic MRBM by mid-decade. This possibility presumes rapid erosion of UN prohibitions and Baghdad's willingness to risk detection of developmental steps, such as static engine testing, earlier. An MRBM flight test is *likely* by 2010. An imported MRBM *could* be flight-tested within months of acquisition.
- For the first several years after relief from UN prohibitions, Iraq probably will strive to reestablish its SRBM inventory to pre-Gulf war numbers, continue developing and deploying solid-propellant systems, and pursue MRBMs to keep pace with its neighbors. Once its regional security concerns are being addressed, Iraq may pursue a first-generation ICBM/SLV.
- Although Iraq *could* attempt before 2015 to test a rudimentary long-range missile based on its failed Al-Abid SLV, such a missile almost certainly would fail. Iraq is unlikely to make such an attempt. After observing North Korean missile developments the past few years, Iraq would be more likely to pursue a three-stage TD-2 approach to an SLV or ICBM, which would be capable of delivering a nuclear weapon-sized payload to the United States.
- Some postulations for potential Iraqi ICBM/SLV concepts and timelines from the beginning of UN prohibition relief include: (i) If Iraq could buy a TD-2 from North Korea, it *could* have a launch capability within a year or two of a purchase; (ii) It *could* develop and test a TD-1-type system within a few years; (iii) If it acquired No Dongs from North Korea, it *could* test an ICBM within a few years of acquisition by clustering and staging the No Dongs—similar to the clustering of Scuds for the Al Abid SLV; (iv) If Iraq bought TD-2 engines, it *could* test an ICBM within about five years of the acquisition, and (v) Iraq *could* develop and test a Taepo Dong-2-type system within about ten years of a decision to do so.
- Foreign assistance is key to Iraqi efforts to develop quickly longer-range missiles. Iraq relied on extensive foreign assistance before the Gulf war and will continue to seek foreign assistance to expand its current capabilities.

Missiles are scarcely the only threat in terms of delivery systems. Iraq has long worked on unmanned combat aerial vehicles (UCAVs) and drones and has experimented with the modification of L-29 trainers and MiG-21s in this role. It developed crude “sprayer” tanks and systems to deliver chemical and biological weapons using its aircraft and helicopters before the Gulf War, and may since have developed more effective ways of releasing chemical and biological agents in “line source” deliveries that would be an order of magnitude more lethal than release through conventional bombs and shells.

Iraqi CBRN Developments and Possible Capabilities

In spite of the Gulf War, and nearly eight years of UNSCOM efforts before Iraq forced an end to the UN inspection effort, Iraq still presents a major threat in terms of proliferation. It is all too clear that Iraq may have increased this threat since active UNSCOM and IAEA efforts ended in December 1998. It is known to have continued to import precursors for chemical weapons and may have increased its holdings of biological growth agents. No one can dismiss the risk that Iraq does have weapons with very high real-world lethalties.

Recent US intelligence reporting notes that it is not possible to collect detailed information on Iraq's CBRN programs, but that it almost certainly is advancing and is being given high priority. A CIA report in August 2000 summarized the state of biological weapons proliferation in Iraq as follows,²⁸

- Since Operation Desert Fox in December 1998, Baghdad has refused to allow United Nations inspectors into Iraq as required by Security Council Resolution 687. Although UN Security Council Resolution (UNSCR) 1284, adopted in December 1999, established a follow-on inspection regime to the United Nations Special Commission on Iraq (UNSCOM) in the form of the United Nations Monitoring, Verification, and Inspection Committee (UNMOVIC), there have been no UN inspections during this reporting period. Moreover, the automated video monitoring system installed by the UN at known and suspect WMD facilities in Iraq has been dismantled by the Iraqis. Having lost this on-the-ground access, it is difficult for the UN or the US to accurately assess the current state of Iraq's WMD programs.
- Since the Gulf war, Iraq has rebuilt key portions of its chemical production infrastructure for industrial and commercial use, as well as its missile production facilities. It has attempted to purchase numerous dual-use items for, or under the guise of, legitimate civilian use. This equipment—in principle subject to UN scrutiny—also could be diverted for WMD purposes. Since the suspension of UN inspections in December 1998, the risk of diversion has increased.
- Following Desert Fox, Baghdad again instituted a reconstruction effort on those facilities destroyed by the US bombing, to include several critical missile production complexes and former dual-use CW production facilities. In addition, it appears to be installing or repairing dual-use equipment at CW-related facilities. Some of these facilities could be converted fairly quickly for production of CW agents.
- UNSCOM reported to the Security Council in December 1998 that Iraq continued to withhold information related to its CW and BW programs. For example, Baghdad seized from UNSCOM inspectors an Air Force document discovered by UNSCOM that indicated that Iraq had not consumed as many CW munitions during the Iran-Iraq War in the 1980s as had been declared by Baghdad. This discrepancy indicates that Iraq may have an additional 6,000 CW munitions hidden.
- We do not have any direct evidence that Iraq has used the period since Desert Fox to reconstitute its WMD programs, although given its past behavior, this type of activity

must be regarded as likely. We assess that since the suspension of UN inspections in December of 1998, Baghdad has had the capability to reinstate both its CW and BW programs within a few weeks to months, but without an inspection monitoring program, it is difficult to determine if Iraq has done so. We know, however, that Iraq has continued to work on its unmanned aerial vehicle (UAV) program, which involves converting L-29 jet trainer aircraft originally acquired from Eastern Europe. These modified and refurbished L-29s are believed to be intended for delivery of chemical or biological agents.

A Department of Defense report issued in January 2001 stated that, "Iraq's continued refusal to disclose fully the extent of its biological program suggests that Baghdad retains a biological warfare capability, despite its membership in the BWC. After four and one-half years of claiming that it had conducted only "defensive research" on biological weapons Iraq declared reluctantly, in 1995, that it had produced approximately 30,000 liters of bulk biological agents and/or filled munitions. Iraq admitted that it produced anthrax, botulinum toxins and aflatoxins and that it prepared biological agent-filled munitions, including missile warheads and aerial bombs.

"However, UNSCOM believed that Iraq had produced substantially greater amounts than it has admitted —three to four times greater. Iraq also admitted that, during the Persian Gulf War, it had deployed biological agent-filled munitions to airfields and that these weapons were intended for use against Israel and coalition forces in Saudi Arabia. Iraq stated that it destroyed all of these agents and munitions in 1991, but it has provided insufficient credible evidence to support this claim. The UN believes that Baghdad has the ability to reconstitute its biological warfare capabilities within a few weeks or months, and, in the absence of UNSCOM inspections and monitoring during 1999 and 2000, we are concerned that Baghdad again may have produced some biological warfare agents."

Director of Central Intelligence George J. Tenet's February 6, 2002 testimony before the Senate Select Committee on Intelligence stated that, "Iraq continues to build and expand an infrastructure capable of producing WMD. Baghdad is expanding its civilian chemical industry in ways that could be diverted quickly to CW production. We believe it also maintains an active and capable BW program; Iraq told UNSCOM it had worked with several BW agents."

John R. Bolton, Under Secretary for Arms Control and International Security described Iraq's status as follows in a speech on May 6, 2002: "Foremost is Iraq. Although it became a signatory to the BWC in 1972 and became a State Party in 1991, Iraq has developed, produced, and stockpiled biological warfare agents and weapons. The United States strongly suspects that Iraq has taken advantage of more than three years of no UN inspections to improve all phases of its offensive BW program. Iraq also has developed, produced, and stockpiled chemical weapons, and shown a continuing interest in developing nuclear weapons and longer range missiles."

Several senior UNSCOM inspectors believe that Iraq created new parallel chemical and biological weapons design efforts that were unrelated to its prewar efforts no later than 1995, and may have been able to develop better VX weapons, more lethal forms of Anthrax and other non-infectious agents, and possibly weaponize Smallpox. Once again, Iraq has had strong incentives

to correct the problems in its previous CBRN weapons, but experts are deeply divided over the probability that Iraq has done so.

Much depends on how well Iraqi has organized its CBRN forces and weaponized its chemical and biological agents. Virtually nothing is known in the unclassified literature about Iraqi process since 1991 in this latter area, which can affect the real-world lethality of chemical and biological warheads, bombs, munitions, and sprayers by up to two orders of magnitude.

Iraq developed effective 155-mm artillery and 122-mm multiple rocket rounds for the delivery of chemical weapons during the Iran-Iraq War and could probably modify such technology to deliver biological weapons. The effective use of chemical weapons armed with artillery and multiple rocket rounds against large enemy ground forces does, however, require an extensive inventory of munitions, however, even in using VX-gas. It is unclear that Iraq could conceal the production, deployment, and training for an operation of this scale. The delivery of biological agents using such weapons would present two critical problems: The effects would probably only develop after the battle was over and there would be a serious risk of secondary effects if the agent blew back over Iraqi troops and civilian areas. The use of such attacks cannot be ruled out, however, particularly as a last extreme, and the troops firing such weapons would not have to be informed of such risks.

Iraq has had cluster bomb technology since the Iran-Iraq War, and had long had the theoretical engineering capability to use non-explosive release mechanisms like air bags to release chemical and biological munitions. Before the Gulf War, Iraq developed crude parachute release designs for its missile warheads, systems which would be substantially more effective than the primitive contact fuse warheads and bombs it had at the time of the war, and which might well have produced negligible weapons effects if they had ever been used.

Iraq must realize that the crude contact fusing, and chemical/biological warhead/bomb designs, it had at the time of the Gulf War drastically limited the effectiveness of its CBRN weapons. Iraq has had strong incentives to correct these problems for over a decade, and the development of parachute release weapons is only moderately challenging. It also has had a decade to adapt non-destructive dissemination technology like airbags. Nevertheless, experts are deeply divided over Iraq's systems integration and engineering skill and the probability that Iraq has developed lethal missile warheads.

There is broad agreement among experts that Iraq has probably developed effective sprayer and line source-delivery technology since the Gulf War. This is the most lethal way to deliver chemical and biological weapons, and is far more effective than using even advanced missile warheads. Iraq also experimented at the time of the Gulf War with using aircraft like the Czech L-29 trainer as a remotely piloted drone to carry out such deliveries at long ranges, and US forces were deeply concerned that Iraq might be using its UAVs for such missions early in the Gulf War. The use of fighters, helicopters, and drones for such missions requires relatively large aircraft, and they would be vulnerable to air defenses. It is at least possible, however, that Iraq could use its best strike aircraft to fly a one-way mission and succeed in penetrating deep into Southern Gulf, Turkish, and Kurdish territory or the rear area of US-led coalition ground forces. It is also possible that Iraq might be able to use a drone, UAV, or modified fighter, GPS,

and earth-hugging flight profiles to create the equivalent of cruise missiles for such missions with sufficient accuracy and reliability to attack city sized targets at long ranges.

Similar critical uncertainties exist in other areas of Iraqi CBRN warfighting. Several UNSCOM inspectors believe that Iraq lied about its ability to produce a stable form of persistent VX nerve gas during the time Iraq was still under inspection, just as it had lied earlier about weaponizing VX. Iraq's mustard gas inventory proved to be highly stable during the period of inspection, and it seems likely that Iraq now has both stable non-persistent and persistent nerve gas. Iraq is known to have continued to smuggle in precursor chemicals during the inspection period and since 1998, and persistent VX would probably be at least 10 times more lethal than anything Iraq used in the Iraq-Iraq War or against its Kurds.

Iraq has experimented with the conversion of biological agents into dry, coated micropowders that can be two orders of magnitude or more lethal than slurries of wet agents. At least in the case of the most lethal, advanced weaponized forms of dry-storable Anthrax -- such biological weapons can achieve the lethality of simple nuclear fission weapons. They can have far more immunity to heat and sunlight, disseminate without clumping, and are extremely lethal when inhaled. They can be non-explosively disseminated with air bag technology, and are far better suited to use in bombs, missile warheads, and covert attacks. Similarly, little is known about any Iraqi advances in sprayer and line-source delivery technology, and in tailoring CB agents to make them more effective in such delivery profiles. Contrary to some literature, truly effective line source and sprayer delivery is a complex engineering problem involving both the agent and delivery system.

The greatest single unknown in terms of Iraqi capability to use biological agents consists of infectious agents like Smallpox and Plague. Iraq was one of the last countries to have a natural outbreak of smallpox and may well have the culture. Smallpox is easy to reproduce in a small facility and is infectious enough so agents willing to commit suicide or individuals who are unwittingly exposed could create serious corridors of infection. The long period between exposure and symptoms deprives such agents of immediate impact in war fighting scenarios, but they could be used in port, airbase, or rear areas during the staging of enemy forces with limited risk because Iraq's borders would be sealed. Infiltrating the agent into Turkey, Southern Gulf states, Israel, or the US and UK would be an option; so would be sending in exposed unwitting or deliberately infected individuals. No meaningful capability now exists to screen for the agent or exposed individuals, and agents carrying Smallpox agent could be immunized, as could those infecting unwitting subjects.

IAEA and US intelligence experts privately put little or no faith in the claims of various Iraqi defectors that Iraq retains the ability to make fissile material, has extensive covert fissile material production facilities, and has workable bomb designs small enough to be used in missile warheads. IAEA experts note that the Iraqi diffusion effort was never effective, that the Calutron designs fell far short of meeting specification, and that Iraq's centrifuge designs proved to be far less effective during laboratory review than they initially estimated, and that Iraq does not seem to have understood the technical problems in using centrifuges to enrich fissile material beyond 90%. They note that cascades of centrifuges are relatively easy to conceal in multistory buildings, but they Iraq is extremely dependent on imports to create such a facility and would probably need outside technical support.

Iraq did, however, have at least two workable fissile weapon implosion designs that could be used in large bombs at the time of the Gulf War, had solved the technical problems in making and triggering high explosive lenses for nuclear weapons, and had workable neutron initiators. If it could obtain fissile material, it could probably make a large explosive device relatively quickly, but not fit one to a missile warhead or build a bomb that any of its aircraft other than its bombers and MiG-24s could deliver at long distances, particularly in low-altitude penetration missions. Iraq might be much more successful in arming any actual nuclear weapon it could obtain, particularly because of the relatively crude PAL systems fitted to many FSU weapons, and the duplicative code sequences used to arm them.

Iraq has shown both that it can disperse and conceal and that it is willing to take serious risks in doing so in spite of the centralized nature of the regime. During the Gulf War, Iraq was willing to place large numbers of chemical weapons under the control of its regular Army forces, although biological weapons and missiles were placed under the control of special units of the Republican Guards which seem to have had a significant element of Iraqi security forces. Iraq also showed during the Gulf War that it could disseminate chemical weapons (and possibly biological weapons) over a wide area without detection by Coalition forces. Coalition intelligence and targeting of such weapons stocks was a near total failure through the end of the war, and advancing forces sometimes had to be warned of the existence of stockpiles of chemical weapons by surrendering Iraqi officers. Iraq mixed chemical and conventional munitions stockpiles without special security precautions and even dispersed unguarded weapons at unused airstrips for possible arming in a last-ditch emergency.

A number of experts believe Iraq could disperse most of its covert biological production on warning or under attack. Iraq is known to have mobile laboratories and storage equipment and to have developed advanced techniques for rapid equipment and material movement during the time of UN inspection. It is not known whether Iraq has developed special survivable communications for such dispersal efforts, or exactly who would control such units and how loyal they would be under extreme conditions – particularly knowing the probable level of reprisals both in terms of the level of attacks on Iraq and future treatment of war criminals. Regimes like Iraq's do, however, have a long history of successfully indoctrinating and lying to carefully selected "loyalist" units. Such units can now also make use of GPS rather than presurveyed sites, and may well be able to make use of GPS for preplanned targeting or to change targeting in the field. This could increase the dispersal area and the effectiveness with which an Iraqi force would be able to target cities and fixed facilities at long ranges.

Current Warfighting Capability A "Guesstimate" and Possible US Response

Cumulatively, these uncertainties make it impossible to do more than guess at Iraq's warfighting capabilities. As such a guesstimate, Iraq's present holdings of delivery systems, and chemical and biological weapons, seem most likely to be so limited in technology and operational lethality that they do not severely constrain US freedom of action, or seriously intimidate Iraq's neighbors.

Barring classified intelligence to the contrary, Iraqi CBRN capabilities must be taken seriously, but do not seem great enough to change US, British, Iranian, Israeli, Saudi and/or

Southern Gulf perceptions of risk to the point where they would limit or paralyze military action against Iraq by a US-led coalition or prevent large-scale Israeli strikes on Iraq.

Iraq has not fired any Scud variants in nearly twelve years. There are no public reports that it has tested dry-storable biological weapons, or has made major advances in its weaponization of nerve gas. Furthermore, it seems unlikely that Iraq can openly build up major production and deployment capabilities without them being detected and targeted, and without provoking strong US counter-proliferation programs, including preemptive or retaliatory strike capabilities.

Nevertheless, Iraq's possession of even moderately effective CBRN weapons must affect other aspects of US, British, Southern Gulf, and Israeli perceptions of the risks inherent in attacking Iraq. President Bush has already made it clear that the US might well make maximum use of its advanced intelligence, strike, and reconnaissance (ISR) capabilities, and air and missile power to carry out a massive preemptive strike on Iraq's CBRN and delivery capabilities at the first sign of any major crisis or as a prelude to an invasion to overthrow Saddam.²⁹ Such weapons create a strong incentive for preemption even in "peacetime conditions" *if* (a) they can be targeted with sufficient reliability and depth of coverage, (b) the US and its allies are confident the resulting strikes would do sufficient damage to offset the risk of Iraq lashing out with its surviving weapons, (c) the US is confident any secondary effects in terms of Iraqi civilian casualties would be limited, and (d) the US is convinced it can show the world that Iraq was in violation of the UN ceasefire. Preemption might also take place regardless of these risks if the US was convinced Iraq was prepared for the use of such weapons or was dispersed a major force for the possible delivery of such forces.

It should be noted in this regard that the physical destruction of stored or dispersed chemical and biological facilities and munitions stored on the ground presents only a limited risk of major collateral damage and secondary civilian casualties unless the weapons are in densely populated areas. No one can disprove the idea of trace effects from such explosions, such as those associated with Gulf War syndrome, but the probabilities are limited.

Any major punitive US and British attack on Iraq would almost certainly target suspect Iraqi CBRN and delivery facilities immediately at the beginning of such an attack. So would any US-led coalition attack designed to remove Saddam from power. Some experts argue this would trigger an Iraqi response when Iraq might otherwise not use its CBRN forces and ride out a conflict. Most experts argue, however, that Iraq is unlikely to reveal it has such weapons in a punitive attack, trying to preserve what it can, and would use such weapons in any case in any attack large enough to threaten the regime.

As has been touched upon earlier, it is impossible to estimate the success of such US attacks, or how much US ISR and targeting capability against Iraqi CBRN forces has actually improved since Desert Fox. While the Bush Administration talked about preemption, but talk about preemption is much cheaper than acquiring the ability to actually execute it.³⁰ Iraq has had decades in which to improve its use of deception, dispersal, decoys, and other countermeasures to US ISR and strike capabilities.

In spite of some wartime claims to the contrary, the US was unable to detect and target most Iraqi CBRN and missile capabilities during the Gulf War. During the Gulf War, Iraq also successfully dispersed its missiles and bombs to create a crude retaliatory strike capability to deliver CB weapons if the regime collapsed or lost the ability to command Iraq forces. It took major risks in collocating CB and conventional weapons, and in dispersing such weapons without security protection.

The massive US intelligence and air strike effort following the beginning of Iraqi missile strikes on Saudi Arabia and Israel failed to characterize the changes in Iraqi facilities and capabilities made during the course of the war and had no meaningful successes against dispersed missiles. The diversion of large amounts of US targeting and air assets may have degraded Iraqi operations, but had little actual lethality. US and British Special Forces failed to locate and target Iraqi missiles and CBRN weapons.

The US and British air and missile strikes during Desert Fox seem to have been no more successful. The US failed to find and strike significant Iraqi CBRN facilities. As a result, Desert Fox at most had only a few successes in hitting large Iraqi missile production facilities, and these were overt targets because they were permitted under the terms of the UN ceasefire. It is unclear that other raids had any useful impact, particularly because most critical equipment could be rapidly dispersed or sheltered. There seem to be good reasons why the US military has never released any meaningful damage assessment data on Desert Fox.

US ISR capabilities have changed significantly in years following the Gulf War, and even since Desert Fox. Even so, they have their limits. It is unlikely that the US can count on detecting and accurately targeting most of a mobile Iraqi launch on warning (LOW), launch under attack (LUA), or retaliatory force for the delivery of CBRN weapons once it is deployed. The US might well not detect the initial deployment of such a capability unless Iraq chose to signal this for deterrent purposes.

Preemption – and any other form of strikes – will also have much more limited effectiveness if Iraq has created some kind of well-concealed launch-on-warning force before the strikes begin. Or, if Iraq deploys one the moment it detects the fact the US is preparing to launch a preemptive strike on Iraq's CBRN and missile capabilities or is preparing a major land attack and coalition effort to overthrow the ruling regime and/or occupy the country. No credible unclassified reports have yet surfaced that Iraq has such a capability in place. However, it is possible that such a covert capability does exist.

However, US intelligence and air strike capabilities may have advanced to the point where the US might well destroy many important fixed equipment items and facilities, and disrupt some aspects of Iraqi operations. Continuing US and British strikes may be able to severely limit or even suppress Iraqi ability to sustain CBRN operations over time -- if the US organized and sustained a major effort to provide continuing surveillance and strike capability over probable launch areas and any suspected Iraqi CBRN facilities and infrastructure.

Unfortunately, it is less clear that US or British Special Forces have made effective efforts to improve their wide area coverage to support such an air-cruise missile strike effort. The real-world capabilities of the improved Patriot and Arrow also present major uncertainties about

the level of anti-ballistic missile (ATBM) defense that would be available, and much would depend on the readiness and deployment of such ATBM forces.³¹

Offense is scarcely the only defense. US missile launch detection, launch point targeting, and probable impact point prediction capabilities have improved significantly since the Gulf War, although much more advanced systems will be deployed after 2010 that will improve key aspects of missile defense and targeting. Steady improvements in the US Patriot have improved its ballistic and cruise missile kill capabilities, particularly against the Scud-type missiles that Iraq can deploy, but the Patriot remains basically a point defense system in dealing with ballistic missiles and much would depend on where it was deployed at the time of an attack.

It seems likely, therefore, that Iraq could succeed in launching some CBRN strikes against US Coalition forces, targets in neighboring states, and/or Israel. If so, this would present the problem for Iraq that it would be using weapons whose accuracy and lethality it has had no way to operationally test in any realistic way. Iraq would not be firing blind or be totally ignorant of the possible lethality of its weapons, but it would not have any basis for making reliable judgments about how many weapons would fully function, their operational accuracy, the effectiveness of its long-range targeting or the lethality of the weapon once it hit. It would also have to rely on satellite TV and other outside media for damage assessment.

At the same time, targeted forces and countries would be confronted with CB agents of unknown character, weaponization quality, and operational lethality. As a result, the defender could only characterize the weapon after it struck, which could take hours or days in the case of biological weapons. At present, even US forces would only be able to firmly characterize dissemination by observing the lethal effects, and the Gulf War has shown that no military power is yet ready to estimate and counter the low-level and lingering effects of CB weapons against its forces. In spite of some pseudoscientific modeling efforts and post-action studies of Iraqi use of CB weapons, this is even more true of the assessment of the effects of such weapons against civilian targets – where the psychological, political, disruptive, and economic effects may in any case be more important than actual short or long-term lethality.

This situation is likely to have the following warfighting effects:

- In the best case, US Coalition forces and neighboring states could easily ride out a *current* Iraqi CBRN resulting attack; it simply would not be lethal enough to force massive retaliation.
- In the more likely case, the Iraqi attack would at least be politically successful enough to force the same major diversion of US and other air strike and intelligence assets as during the Gulf War. This would not save the Iraqi regime, but does mean the US must size its air and missile forces to cover this contingency. This would require major theater-wide air capabilities in excess of those needed for conventional warfighting.
- The US and other defenders must plan to deploy the best available ATBM defenses and suitable passive defenses to deal with CB attacks on ports, airfields, and major US staging facilities, as well as on allied cities and key oil facilities. While highly lethal Iraqi

attacks now seem unlikely, they are possible. (And, Iraqi capabilities are likely to steadily increase with time.)

- In the *current* worst case, the US and its allies could take serious – if scarcely crippling – casualties. This could force the US to threaten Iraq with a massive response to any Iraqi use of CBRN weapons and then execute it. The question then would be whether any conventional destruction of Iraq's leadership, military, economic and infrastructure targets would be rapid and drastic enough to persuade the loyalist elements operating the Iraqi CBRN force to stop striking. The same question would apply to any US threat to use nuclear weapons, although such threats seem to have had some effect during the Gulf War.
- The outlying version of the worst case is that Saddam should inflict serious enough damage on US or allied forces, or regional targets, for the US to engage in nuclear escalation. It is at least possible that such escalation might be the only way to confront the Iraqi military with sufficient reason to cease obeying orders to use CBRN weapon in a contingency where the existence of Saddam's regime was threatened.

As has been touched upon earlier, the key wild cards in this list of conclusions are (a) the assumption that Iraq has no nuclear weapons, and does not have a combination of weaponized biological agents and delivery systems that would be so lethal that they could achieve "nuclear" or "strategic" lethalties, and (b) Iraqi ability and willingness to use infectious weapons like Smallpox and plague.

There also is no expert agreement about Iraqi willingness to escalate, and how loyal and ready the Iraqi troops actually using such weapons would be in the face of threats to massively attack Iraq in response and treat them as war criminals. Deterrence is easy to postulate or deny, but its effectiveness is purely speculative. A few experts also argue that Saddam Hussein might launch on warning or under attack for several reasons: (a) his belief that the US and its allies would be most vulnerable to massive casualties and find it hardest to sustain an offensive if they took such casualties early in a war, (b) he would have the tight control over the forces involved and the most reliable communications, (c) the threat of follow-on attacks would be credible, and (d) he would have the largest number of surviving forces.

A Current Warfighting Capability "Guesstimate:" Israeli Response

It is dangerous to see the Iraqi threat to Israel only in terms of Iraq's possible use of missile strikes and CBRN weapons against Israel to try to end Arab support for some US-led effort to overthrow Saddam Hussein. Iraq has used political support of the Palestinian cause as a political weapon since the late 1980s, and has supported the Second Intifada as useful tool in winning Arab popular support and influencing other Arab regimes. The \$25,000 it pays directly to the families of Palestinian suicide bombers is scarcely an act of altruism. Israel is already a political and diplomatic weapon in Iraq's support to prevent Arab support for any invasion of Iraq, and Iraq is likely to continue to exploit every opportunity to use this weapon.

According to expert reports, Israel sees an Iraqi missile attack on Israel as an inevitable part of any major US-led invasion to overthrow Saddam's regime and feels such an attack might well use CBRN weapons. It feels it has no choice other than to support such an attack because any effort to oppose it or stand aside would be futile and simply result in the growth of steadily worse Iraqi threats even if the US did not attack.

Israel has also concluded that the credibility of its deterrent would be undermined if it rode out another series of such attacks, as it did during the Gulf War. As a result, Israel would launch a major counterstrike in the event of another round of missile strikes. The degree to which it might or might not resort to nuclear escalation in the face of lethal CBRN strikes on an Israeli city or major area target is a subject IDF officers and Israeli officials will not discuss except on a personal basis and in the most speculative terms.

Compared to the US, Israel has limited intelligence, surveillance, and targeting capabilities to cover all of Iraq – although improvements to its intelligence satellites are changing this situation and its intelligence and targeting capabilities are far better than in 1991. Israel did conduct extensive exercises to examine its options for such attacks in 2002 and conducted extensive strategic planning talks to consider various contingencies and their political and military consequences.

Israel does have military limits. Its air force is capable of effective long-range strikes against known targets, but cannot sustain a loitering or “kill box” type presence to seek out difficult mobile or concealed targets or try to suppress Iraqi missile firings by sustaining a presence over launch areas. Israel has only limited ISR capabilities to target dispersed and covert Iraqi CBRN forces.

In spite of various claims in the past, Israeli Special Forces also have little real world capability to assist in targeting and destroying Iraqi forces that are dispersed over wide areas, particularly when Iraq is likely to have large numbers of decoys and rapid movement. Its land and air forces would also have to move over or through Jordan.

Israel does have active Arrow missile defenses, and they have more area coverage than the US Patriot. US missile launch detection, launch point targeting, and probable impact point prediction data would be provided to Israel as well as the Arab allies of the US, and it is possible that Israel would get early warning data from Jordan – whose radar capabilities have improved in recent years. However, the Arrow ATBM now has more value as a deterrent against missile strikes than proven defense capability. The Arrow test program has been far too limited, narrow in coverage, and rushed to make a convincing warfighting case for the system.

The most probable Israeli reaction to a new round of Iraqi missile attacks would be as follows:

- In the best case, Israel could easily ride out the resulting attack; it simply would not be lethal enough to force massive retaliation. In such a case, Israel might carry out major conventional strikes against critical Iraqi military or economic targets to show its resolve. The impact this would actually have on the Arab world is easy to exaggerate. It would be carried out in the context of massive, ongoing US-led Coalition air operations, and might

well appear to be little more than military “noise” in the midst of much larger ongoing coalition operations. While such an Israeli role might well anger many in the Arab world, it may not have much real-world impact on the actions of key Arab governments. It seems just as likely that Israeli military action would increase the pressure of Arab governments on the US to reach a rapid and decisive conclusion, as it would actually inhibit operations.

- In the more likely case, the Iraqi attack would not be lethal enough to kill large numbers of Israelis or pose an existential threat. Israel would then have to decide whether to issue nuclear threats as well as execute conventional strikes on Iraq. Much would depend on how quickly and confidently Israel could characterize the nature and lethality of the Iraqi hits on Israel.
- In the worst case, Israel would face what could become a cumulative existential threat to key urban areas, like Tel Aviv and Haifa. Under these conditions, it might openly declare its nuclear deterrent and threaten nuclear retaliation against Iraqi cities and military forces in an effort to halt Iraqi action. If Iraq should succeed in delivering extremely lethal biological agents against an Israeli city, Israel would probably massively retaliate with nuclear ground bursts against every Iraqi city not already occupied by US-led coalition forces. This could destroy Iraq as a state. Israel would also probably then posture itself for hair trigger massive retaliation against any Syrian or Palestinian effort to exploit the Iraqi strikes.

There are several wild cards here. One is infiltration into Israel of knowing or unwitting agents either spreading an infectious agent by contact or carrying one for covert dissemination. Another is that Israel has enough intelligence to risk a decapitation attack on the Iraqi leadership rather than a more orthodox form of retaliation.

Jordan is caught in the middle of this potential struggle, and Jordanian officials are divided over whether Jordan so support a US-led invasion to be on the winning side or resist any role in US military action. They face a similar dilemma over cooperating with Israel in the event of an Iraqi missile attack because of the risk Iraqi missiles might land on Jordan. In practice, King Abdullah and Jordanian officials tend to be more supportive of the West than the vast majority of the Jordanian people – whether Transjordanian or Palestinian.

This has led some experts to argue that Iraq might indirectly attack Israel during any missile attack or during a major conventional struggle by attacking the Hashemite regime. In such a scenario, Iraq might support assassination attempts on the King, royal family, and senior Jordanian officials. It might also inspire riots and major demonstrations or insist on moving forces into Jordan. This risk is compounded by the possibility the US might use Jordan’s Red Sea ports and common border with Iraq to stage a land attack from the West or seek air basing in Jordan. Iraq also knows that Israel is most likely to overfly Jordan if it retaliates for Iraqi missile strikes and has an incentive to try to involve Jordanian air defenses to try to block such Iraqi raids.

A Current Warfighting Capability “Guesstimate:” Turkish and Southern Gulf Response

Iraq used large numbers of Scuds to strike at Saudi Arabia during the Gulf War. As has been discussed earlier, it has a wide range of incentives to strike at those Southern Gulf states that support, base, and stage US and allied forces in any invasion of Iraq. This is a key reason the US might have devote major air assets to a “Scud hunt” in such a contingency, as well as rush in ATBM/aid defense units like the Patriot.

Iraq is extremely unlikely to use missiles and CBRN weapons to strike at Turkey unless Turkey actively supports a US-led coalition. Even then it may be very reluctant to act. Turkey is scarcely likely to be passive if it is subject to such an attack. It has a major air force and has corps-level ground forces near the Iraqi border. The Turkish Army has already moved into northern Iraq on several occasions to keep it from being a sanctuary for Turkish Kurd opposition forces, and one of these operations seems to have involved as many as 30,000 men. Few in the region see provoking the Turks as likely to result in successful intimidation rather than a massive military response.

Future Risks and Breakout Problems

One of the key questions affecting any military assessment of Iraq is what happens if Saddam stays in power, the US does not take military action, and the present sanctions regime fails. If UN sanctions on Iraq are lifted, or are sharply weakened, Iraq may be able to rebuild its strategic delivery capabilities relatively quickly. And any serious future conflict involving weapons of mass destruction could then have much more drastic consequences than seems likely to be the case today. This would be particularly true if Iraq could develop advanced biological weapons with near-nuclear lethality, or assemble nuclear devices with weapons grade fissile material bought from an outside source. There might be little or no warning of such strategic developments, and the US might not be willing to counter by extending theater nuclear deterrence to protect its Southern Gulf allies.

There are several other developments that might allow Iraq to use proliferation to pose a much more serious near-term threat to US conventional capabilities in the region:

- *A successful Iraqi attempt to buy significant amounts of weapons grade material.* This could allow Iraq to achieve a nuclear break-out capability in a matter of months. Both the US and the region would find it much harder to adjust to such an Iraqi effort than to the slow development of nuclear weapons by creating fissile material within Iraq. It seems likely that the US could deal with the situation by extending a nuclear umbrella over the Gulf, but even so, the Southern Gulf states might be far more responsive to Iraqi pressure and intimidation. Most, after all, are so small that they are virtually "one bomb states."
- *A change in the US and regional perception of biological weapons.* Biological weapons are now largely perceived as unproven systems of uncertain lethality. Regardless of their technical capabilities, they have little of the political impact that the possession of nuclear weapons has. Iraq might, however, conduct live animal tests to demonstrate that its biological weapons have near-nuclear lethality, or some other power might demonstrate

their effectiveness in another conflict. The successful mass testing or use of biological weapons might produce a rapid "paradigm shift" in the perceived importance of such weapons and of Iraq's biological warfare programs.

- *Iraq might break out of UN sanctions and reveal a more substantial capability than now seems likely.* Paradoxically, such an Iraqi capability would help to legitimize Iran and Israel's nuclear, biological, and chemical programs and the escalation to the use of such weapons.
- *Iraq might use such weapons through proxies, or in covert attacks with some degree of plausible deniability.* Terrorism and unconventional warfare would be far more intimidating if they made use of weapons of mass destruction.

Iraq Carries Out Major Attacks Against the US, Britain, Israel, or a Gulf State using Covert Action or a Terrorist/Extremist Proxy

Opinions differ sharply as to Iraq's capability *and willingness* to carry out covert attacks or use terrorist and extremist movements as proxies. There are experts who believe that Iraq was directly involved in the first attack on the World Trade Center in 1993, played a role in the attack on the USAF barracks in Al Khobar, helped support al Qaida in the "9/11" attack on the World Trade Center and the Pentagon, and/or played a role in the anthrax attacks that followed.

No "smoking gun" has emerged in any of these cases, however, and the problems of proving a conspiracy took place are matched by the problems of proving a double negative: First, proving that a conspiracy did not take place, and second, proving that any credible conspiracy theory is the only possible explanation of the facts. In short, it may be equally possible to either convincingly prove that Iraq was involved in such conspiracies or that it was not.

The various branches of Iraqi intelligence do have a long history of overseas operations and ties to extremist groups. Iraq actively supported various extremist groups in the Gulf and the rest of the Middle East until the mid-1970s. While it halted most such efforts after the Algiers Accords, and sought the assistance of other Arab states in dealing with Iran from the mid-1970s to the time of the Gulf War, it did conduct covert operations in Kuwait during 1990, and carried out extensive infiltration operations across the Kuwaiti and Saudi borders after 1991. Iraqi intelligence may have been involved in an assassination plot against former President Bush.

The US State Department reports that Iraq has provided bases to several terrorist groups including the Mujahedin-e-Khalq (MEK), the Kurdistan Workers' Party (PKK), the Palestine Liberation Front (PLF), and the Abu Nidal organization (ANO). In 2001, the Popular Front for the Liberation of Palestine (PFLP) raised its profile in the West Bank and Gaza Strip by carrying out successful terrorist attacks against Israeli targets. In recognition of the PFLP's growing role, an Iraqi Vice President met with former PFLP Secretary General Habbash in Baghdad in January 2001 and expressed continued Iraqi support for the *Intifada*. Following this meeting, a senior delegation from the PFLP met with an Iraqi Deputy Prime Minister in September 2001. Iraq also continued to host other Palestinian rejectionist groups, including the Arab Liberation Front, and the 15 May Organization.

Unlike Iran, however, Iraq has never demonstrated much capability to conduct "proxy wars" by training, arming, and funding Arab extremist movements. Iraq does sponsor some extremist and terrorist groups, but the end result has done little for Iraq. Iraq also lacks Iran's bases, training centers, and staging facilities in other countries, and the political support of third nations, like the Sudan and Syria, that are close to the scene of such proxy conflicts. Similarly, Iraq can only hope to win proxy wars fought against vulnerable governments. Attempts to fight such wars will have little impact on a successful Arab-Israeli peace settlement, or in sustaining civil conflict in the face of a government that demonstrates that it has the capacity to govern and deal with its social problems.

Iraq has some capability for information warfare and cyberterrorism, but it seems very unlikely that it is capable of advanced attacks on protected US military and US government systems. Iraq also probably has little capability to attack the US private sector and the information systems of Gulf states. It is, however, steadily improving the defense of its own systems. Most are redundant, rely heavily on buried land-links and optical fibers, and are isolated from netted or open systems.

The best documented Iraqi intelligence operations, in recent years, have involved surveillance and attacks on opposition elements, various forms of money laundering and movement, and the support of Iraq's extensive network of clandestine purchasing offices. There are probably Iraqi agents and sleepers in all of the major Kurdish movements, and in virtually every outside Iraqi opposition movement. Most such opposition groups seem to be totally transparent to Iraqi intelligence, with the possible exception of those movements backed by Iran. The Iraqi purchasing and financial networks give Iraqi intelligence a significant presence in Europe and the Middle East, and one that can easily move weapons and money to destinations other than Iraq.

While reports of Iraqi intelligence contacts with al Qaida remain controversial, the fact remains that most Middle Eastern intelligence services maintain contact with a wide range of extremist and terrorist groups that they might arm, finance, and potentially use as proxies. This includes the intelligence services of every regional power friendly to the US, as well as the more radical powers like Iran, Iraq, Libya, Syria, and the Sudan. Iraqi intelligence may have operational cells in countries like Yemen, as well as in the US, Canada, and Europe.

As a result, Iraq might well be able to mount a covert or proxy attack if it chose to do so, and Iraq might attempt an act of mass terrorism, or use its weapons of mass destruction in such a way. While some argue that Iraq would never turn CBRN weapons over to a terrorist or extremist movement because of the risk they would be used against other targets, much would depend on the level of risk Iraq perceived, or whether Saddam Hussein felt his regime was threatened or on the edge of destruction. It is also impossible to rule out possible Iraqi agents in place with cells designed to either use biological weapons or conduct some other dramatic form of attack. Similarly, Iraq might well calculate that it could ride out such attacks or preserve plausible deniability, given the wide range of possible extremist attackers, the past problems that the US has had in identifying attackers, and the uncertain US response to past terrorist attacks.

The most dangerous options involved would probably be biological warfare, barring the risk of some form of "loose nuke." Sabotage of civilian facilities, chemical terrorism, and

radiological terrorism could produce serious casualties, but not critical ones. The worst scenarios would involve the covert creation of capabilities in place to deliver significant amounts of dry, storable, coated micropowders of Anthrax (slurries and wet agents would be difficult to handle and disseminate), or infectious agents like smallpox (Iraq was one of the last countries to have outbreaks of smallpox and may have a culture).

Any total collapse of the Arab-Israeli peace process, or sign of instability in the regimes in the Gulf, might allow Iraq to make more successful use of proxy wars. So would any unforeseen events that led to the creation of a radical Arab regime in Jordan and Egypt, and a Syria that turned to Iraq for support. Iraq has a strong revanchist motive to use proxy warfare against Israel, Saudi Arabia, and the United States. The practical problem that Iraq faces will be to find a place and contingency where it could exploit such capabilities that offer more return than using proxies, and which allows Iraq to act at an acceptable level of risk at which the US and its allies would not retaliate.

Iraq versus the United States and a US-led Coalition

A major US military effort to overthrow Saddam Hussein's regime is perhaps the most complex and dangerous contingency that Iraq faces. The previous contingency analyses have already illustrated many of the issues that would be involved, but any such US attack would have a different character from either the Gulf War, or the US and British military actions that have taken place as part of containment. Such an attack would be an "existential" attack on Saddam's regime, and the one most likely to provoke extreme efforts and responses from Saddam and those around him. Actual US military success that brought the regime to collapse or near collapse is also the case most likely to lead Iraq to employ CBRN weapons against foreign countries and forces.

Once again, however, there are several possible scenarios and each imposes different strains on Iraqi capabilities. There also is no fixed level of force the US would need to execute any given scenario, and no fixed mix of allies and bases the US would need. Much depends on the level of risk the US is willing to accept for itself and for its allies, the level of casualties it is willing to take and inflict, and its postwar approach to nation building.

Regardless of the scenario, conducting such a US military operation, and building the necessary regional and coalition support will not be easy. While this analysis focuses on military and not political issues, it is clear that the pressures created by existing US military operations and the politics of coalition building favor at least a limited delay. The US has reason to wait until it has made more progress against Al Qaida and needs at least three to six months to fully prepare a major US expeditionary force.

More generally, the US would clearly benefit from better coalition building and this involves firmly convincing potential allies that the US (a) has a clear plan to act quickly and decisively, (b) will commit all necessary force, and (c) has a post-Saddam plan for rebuilding a unified Iraq that will be desirable to both the Iraqi people and Iraq's neighbors. It would also benefit from placing more emphasis on dialog with Iran than trying to match the posturing rhetoric of Iran's hardliners, and from any step that can be taken to end the tragedy and ease the political backlash from the Second Intifada.

At the same time, the strategic situation does not favor indefinite delay. It is possible that prolonged containment might allow the Gulf states, Iran, Turkey, and the West to ride out Saddam Hussein's regime without future conflicts. Unfortunately, containment may falter. It seems doubtful that sanctions on Iraqi arms imports can be sustained forever, and Iraq is virtually certain to perfect biological weapons with nuclear lethalties even if it cannot obtain nuclear weapons. Difficult and uncertain as a major military operation may seem today, the difficulties are likely to grow steadily with time. So is the threat that Saddam Hussein's Iraq can pose to the region.

US Forces and Allied Capabilities

There are immense disparities between US and Iraqi military forces, and in the support the US and Iraq may receive from other states. While the US cannot begin to bring all of its military capabilities to bear in an area half way around the world, it does have a vast pool of forces to draw upon. While the US cannot at this point count on publicly declared support and contributions from its allies inside or outside the Gulf, it is certain to have such support from a number of countries at the time it begins an invasion. Put differently, the US will have support from an unpredictable mix of allies that will be of great strategic value. Saddam Hussein's regime can only count on sympathetic but largely insincere political rhetoric.

The Total Pool of US Forces

As of April 2002, the US had a total pool of roughly 1.4 million active forces in uniform, 1.28 million active and standby reserves, and some 667,000 civilian employees – many who perform functions performed by the military in Iraq. The war in Afghanistan has led to major changes in the normal deployments of US forces, The US Army had 481,300 men, the Navy had 381,900. The Marine Corps had 172,700, and the Air Force had 362,300.³² US Special Forces included some 15,000 men in the US Army, 4,000 in the US Navy, and 9,320 in the USAF

The total strength of US combat forces is constantly evolving, but the latest figures the Department of Defense reports in its Defense Almanac provide a reasonable approximation of US capabilities. US land forces included 10 active and eight US Army reserve divisions, and 3 active and 1 reserve US Army division, plus 3 active and 18 reserve US Army brigades. The army had some 7,000 main battle tanks, 7,000 major other armored vehicles, 6,000 artillery weapons, and 1,500 armed helicopters. The Marine Corps had 3 active and on reserve division, with some 400 main battle tanks, 1,700 light armored and combat vehicles, 330 artillery weapons, and 190 armed helicopters.

US conventional air forces included 46 USAF squadrons with 906 active attack and fighter aircraft, plus 38 squadrons and 549 combat aircraft in the reserves. It has some 16 B-2s and 56 additional B-52s it can use for conventional missions in its strategic forces. There were also a total of 82 B-1 bombers with 36 active and 16 reserve B-1B bombers in conventional roles.. US forces included 36 USN squadrons with 432 active attack and fighter aircraft, plus 3 squadrons and 36 combat aircraft in the reserves, and 21 Marine Corps squadrons with 280 active attack and fighter aircraft, plus 4 squadrons and 48 combat aircraft in the reserves.

The US Navy has shrunk nearly 40% since the Gulf War. Nevertheless, it had 259 combat ships in its battle forces, plus 18 SSBNS, 25 support ships, and 15 reserve ships, for a total battle force of 317 ships. These included 12 aircraft carriers and extensive amphibious, mine warfare, and cruise missile launch-capable ships.

While any discussion of “normal” deployments has become moot since September 2001, roughly 1.1 million military are permanently deployed in the US, 117,000 in Europe, 160 in the FSU, and 101,000 in Asia. Another 220 are deployed in Sub-Saharan Africa, and 5,400 elsewhere in the Western Hemisphere. (These figures include afloat personnel.).

The totals permanently assigned to the Middle East, North Africa, Central Asia, and South Asia are changing so rapidly that any estimates are hopelessly dated. However, the most recent figures are 29,384 for the entire region, of which 14,772 were afloat in the Red Sea, Gulf, and Indian Ocean. The permanently stationed personnel in countries that would directly affect a contingency involving Iraq included 949 in Bahrain, 625 in Diego Garcia, 499 in Egypt, 36 in Israel, 29 in Jordan, 4,602 in Kuwait, 251 in Oman, 22 in Pakistan, 52 in Qatar, 7,053 in Saudi Arabia, 9 in Syria, 402 in the UAE, and 4 in Yemen. These figures are so dated, however, that they do not reflect the fact that the US has slowly cut its presence in the Kingdom in recent years. For example, in September 2001, the US had some 650 army personnel manning a Patriot and signals unit on six-month rotations, some 4,800 men in rotational units that were enforcing the Southern no fly zone, 20 USN personnel, and 250 USMC personnel.

The Uncertain Role of Allied and Neighboring States

No one can predict how much support the US will get in creating a coalition to overthrow Saddam. It is almost a tautology, however, that the US will not deploy forces for a major invasion unless it gets a critical pool of allies in the region that are willing to provide the support it needs. It is also a fact that at this point in time, no nation in the region has expressed support of a major US military operation, and even Kuwait has said that it would only support such action if directly authorized by the UN, and the only Western government whose leader has indicated that it would support the US is Britain. At the same time, nations often change their minds when they come under direct pressure from the US, and the President present specific plans and options. It is also a fact that Iraq would face threats in terms of the attitudes and military behavior of some of its neighbors even if they did not openly or fully support the US.

Britain can make a major contribution to a US-led coalition. Like US forces, British forces are far smaller than at the time of the Gulf War. Britain could, however, still deploy an expeditionary force of at least two brigades, extensive air and naval forces, and excellent Special Forces. Its forces also offer the highest level of interoperability with US forces. The UK would be primarily lift, sustainment/logistic, and base limited, but has a force of some 212,000 men in uniform. Its army has some 114,000 men with extensive armored, mechanized, heliborne, and Special Forces elements; it includes a total of 616 main battle tanks, well over 2,500 other armored vehicles, and over 450 artillery weapons. At least one two-brigade division in this force – the 1(UK) Armored Division – seems to be undergoing training and organization for this kind of expeditionary operation.³³

The RAF has roughly 50,000 men and some 430 combat aircraft. The Royal Navy has 16 submarines, and 34 principal combatants. It can deploy up to two light carrier task forces, with roughly 20 combat aircraft and helicopters each, plus 21 mine countermeasure ships, patrol boats, and six amphibious ships. The UK normally deploys a small Armilla Patrol in the Gulf and Indian Ocean, with two combat ships and a small team of less than 50 men in Oman.³⁴

France has severely underfunded its power projection capabilities and has never properly supported the plans of its military with the resources they need. It does, however, have the ability to stage and support brigade-sized Foreign Legion and heliborne forces in the Gulf. France normally stations some 4,200 men in the Indian Ocean area and 3,200 in Djibouti. These include an Indian Ocean squadron with two Marine Regiments, and approximately 2,800 light mechanized forces with helicopters, plus a small number of combat aircraft. France could deploy one light carrier task force with 25 combat aircraft or a larger number of combat helicopters. It has extensive land-based combat air assets, and the UAE and Qatar operate French aircraft and could provide some logistic and maintenance support. A wide range of other NATO powers could provide limited contributions of specialized combat forces, and help in securing Iraq for nation-building purposes, and provide basing, staging, and logistic support.

While no neighbor of Iraq has yet expressed a willingness to commit military forces against Iraq – and their willingness to do so at the point a US led invasion becomes a reality is currently a matter of speculation – several have at least discussed such cooperation.

Turkey, for example, is a critical potential ally and has been the subject of several high level visits since the Bush Administration came to office. These discussions have involved incentives like aid, debt forgiveness, a public US guarantee that there would be no Kurdish state, guarantees that the Turkish economy would not suffer from another war, and pledges that the US would support an effective nation building effort.³⁵

The US is more likely to ask Turkey for basing and staging facilities than military forces, but Turkey is a major military power. As has already been mentioned it has repeatedly intervened in strength in Northern Iraq in recent years (up to 30,000 men). It has a total of 609,000 men in uniform, and nine army corps with a total of 495,000 men in its army, over 4,200 tanks, roughly 4,000 other armored vehicles, and over 2,800 artillery weapons. Its air force has some 60,000 men and over 500 combat aircraft. Its navy has some 54,000 men, 14 submarines, 22 major combat ships, 21 missile craft, 28 patrol craft, and 24 minelayers, but the Turkish Navy is not organized to project power into the Gulf region.

The Southern Gulf states have many military weaknesses and so far have shown little willingness to provide forces for military action against Iraq. They do, however, have major basing and logistic assets. Oman has long provided prepositioning and air basing. The UAE has provided port facilities, and has agreed to preposition a US Army brigade set. Bahrain, Kuwait, and Qatar have long provided air basing and are steadily improving their facilities. Kuwait and Qatar already preposition the heavy combat equipment for one US army brigade set each and substantial amounts of other equipment and munitions. Bahrain hosts the US fleet in the Gulf, and Kuwait can serve as a major staging area for US ground troops operating against Iraq.

Saudi Arabia can provide excellent ports and air bases, and strategic depth for both air and land operations against Iraq. Its willingness to do so in the face of its problems with Islamist extremists and the popular backlash against the Second Intifada is more speculative than that of the other Gulf states, but Saudi cooperation could take many forms. Saudi Arabia has already provided command and control, airspace access, and some staging facilities for the US operation in Afghanistan. Even if its forces never cross the Iraqi border, they provide air defense on a critical border and may well force Iraq to disperse forces to defend against the very possibility of an attack from the West. "Passive" Saudi support in terms of access to airspace, C4I facilities, and recovery bases for air operations could be of great value. More extensive support in terms of water, POL, port facilities, and air bases would be of similar value and Saudi willingness to allow US ground troops to operate from Saudi Arabia would confront Iraq having to disperse its heavy divisions in ways that would put serious strains on its logistic, mobility, and command capabilities even if these Iraqi forces remained concentrated in central Iraq.

While Iraq may see Jordan primarily as a tool in its struggle to exploit the Second Intifada and win acceptance in the Arab world, Jordan too is a potential threat. Iraq has to face the reality that Jordan probably would not resist Israeli use of its air space. It cannot totally dismiss the possibility that the US might obtain access to airbases and even be able to move in land and combat helicopter forces for some kind of attack from the West. King Abdullah faces strong popular opposition to any support of the US, but a more stable, friendly Iraq free of sanctions could be of immense strategic and economic benefit to Jordan, and Jordan's government can have no illusions about the sincerity of Iraqi "friendship."

Iran also presents a problem for Iraq regardless of how hostile Iran may be to a US military action. Iran may not be strong enough to challenge Iraq by itself, but the fact remains that Iraq faces the constant risk that Iran may exploit any US defeat of Iraq. Ironically, this risk is greatest in terms of a covert operation, opposition overthrow, or limited US military involvement in Iraq, since in these contingencies that Iran could do most to try to exploit Shi'ite unrest and the Iranian-based Iraqi opposition. Iraq learned during the Gulf War that even seeming Iranian support could quickly turn into the confiscation of a large part of the Iraqi air force. It must be careful in drawing down upon its ground forces to deal with a US-led attack. Iran also is not strong enough militarily to act on the hostility of its hard-liners to the US. It must tolerate US military action even if it opposes it politically, and "axis of evil" aside, the Khatami faction of the Iranian government and Iranian people are well aware that the Bush Administration's hostility only applies to one element of a deeply divided Iranian government.

A US invasion of Iraq may well frighten Iranian hard-liners with the prospect of US encirclement, but they are scarcely in a military position to challenge the military capabilities of the US. US assurances and informal dialog might well, on the other hand reassure Khatami, more moderate Iranian political leaders, and the Iranian people. Getting rid of a hostile and aggressive Iraq would greatly ease Iran's security problems, and reduce its near and long term incentive to proliferate. A clear US commitment to ensuring the rights of Iraqi Shi'ites, and to a form of nation building that offered both the hope of Iraq stability and the certainty of US withdrawal would also ease tensions with Iran.

While Israel is generally perceived as an American strategic liability because its involvement might weaken the support Arab allies provide to the US, Iraq also faces the risk that

any military adventures against Israel could at a minimum lead to major new air strikes on Iraq that would probably show far less concern over collateral damage than US military action, and at most devastate Iraq as a nation. Saddam Hussein's willingness to commit suicide in a last gesture, or take massive military risks in hope Arab governments would turn against a US military operation in mid-conflict, may or may not be exaggerated. The practical military consequences of any such Israeli to Iraq, however, may well be far more serious than the level of strategic annoyance they cause the US.

Current US Land Warfare Capabilities in the Gulf

For all its global military strength, the US is scarcely organized for an immediate war with Iraq, and any estimates of the US forces currently in the region do not reflect the US power projection capabilities that would be deployed in an Iraqi contingency. In June 2002, however, the US had a total force of 55,000 military personnel from all services in the entire theater. Many were assigned to the Afghan conflict, with 7,500 in Afghanistan, 1,000 in Pakistan, 1,000 in Kyrgyzstan, 1,700 in Uzbekistan, and 13,000 afloat. In addition, the US had 5,100 personnel in Saudi Arabia, 3,900 in Qatar, 3,500 in Oman, 4,500 in Bahrain, 850 in the UAE, and 64 in Yemen. (The Gulf numbers had dropped since April 2002 because of movements into the theater, and because of cuts in the naval presence that dropped the personnel afloat by 9,000.) The US had a total of 570 aircraft for the entire CENTCOM area, including the Afghan conflict, which included 195 fixed-wing shooters, 40 attack helicopters, 125 support helicopters, 110 fixed wing cargo aircraft, 40 ISR aircraft, 60 tankers, and 90 allied coalition aircraft.³⁶

It should be noted that many US senior commanders would strongly prefer to keep devoting such assets to the attack on Al Qaida through early or mid-2003. They in no way oppose US operations against Iraq, but would like to make substantial further progress in the war on terrorism before conducting a major operation against Saddam Hussein's regime.

The US did not have any major land combat units forward deployed into the Gulf in mid-2002, although it had some combat elements in Kuwait. The US Army stocked equipment for two heavy armor brigades in the Gulf area. One brigade set is prepositioned in Kuwait, and the other set (which includes equipment to support a division headquarters) is located in Qatar. Prepositioning of a third set is planned for the UAE. The US Air Force stores air base operation sets in several Southern Gulf countries, many of which are being used to support contingency operations. These two brigade sets, however, do not have first line combat equipment in a number of cases, and did not include support and logistic equipment that required up to another 30 days to deploy.

The US can draw on a broader pool of prepositioning ships both at Diego Garcia and in the Pacific. It uses a mix of government-owned ships and commercial vessels to stockpile materiel at sea. Army equipment and supplies are carried aboard a fleet of chartered vessels, LMSRs, and an RRF ship. These forces are stationed in the Indian and Pacific Oceans, and provide materiel for an armor brigade and selected combat support and combat service support units. Additionally, the fleet carries Army watercraft for port-opening operations. Plans call for an additional Army brigade set to be prepositioned afloat in the near term.

Marine Corps equipment and supplies are carried on 14 vessels operating with the

Maritime Prepositioning Force. The ships are organized into three squadrons, each capable of supporting a 17,300-person MEB for 30 days. The squadrons are stationed in the western Pacific, Indian Ocean, and Mediterranean Sea. Plans call for two new vessels to be added to the MPF in the near term. These ships, converted specifically for MPF operations, will be allocated between two MPF squadrons. The US sea-based prepositioning force also includes three chartered ships carrying Air Force munitions. Additionally, there is an RRF tanker and two RRF ships specially equipped to transfer fuel directly ashore.

Prepositioning ships at Diego Garcia had the equivalent of another brigade set -- plus substantial support equipment and supplies -- but required 11-17 days to make ready and move. The US did, however, have substantial supplies and basing facilities in Bahrain, Qatar, the UAE, and Oman plus the air units in forces enforcing the Southern No Fly Zone in Saudi Arabia.

The US can draw upon a pool of some five light and heavy divisions for relatively quick expeditionary operations, but these forces normally require months of specialized training, preparation, and reorganization for sustained operations against heavy enemy forces with extensive armor and artillery. These units are significantly less combat capable than in 1991, however, because the US army has eliminated some 25% of the combat battalions in such units while keeping all of the headquarters and command slots.

For all of the talk of a revolution in military affairs and an "Army of the future," US Army experts differ over just how far the US Army has advanced in several mission-critical areas:

- Reliance on past concepts of force density and required numbers to achieve overwhelming force.
- The ability to mix elements of light and heavy forces rather than rigidly rely on the formation and unit structure of the present combat forces.
- Willingness to risk relying on less heavy combat systems like artillery and measures to lighten logistic and lift requirements.
- Willingness to rely on airpower to secure the flanks of major offensive thrusts rather than advance as broad offensives.
- Willingness to risk deploying follow-on forces after the air and land campaign begin rather than deploy all forces to the theater before land combat begins.
- Willingness to aggressively commit attack helicopter and heliborne forces to unsecured forward bases and locations, and/or rely on air power to secure their facilities.
- Willingness and ability to make the most effective use of close air support coupled to a USAF air force emphasis on interdiction and rear area bombing.
- Ability to handle the bridging requirements necessary to cross water barriers like the Euphrates.

- Arrangements to effectively mix US Army, USN, and USMC special force equivalents, and make use of ships and other non-Army platforms to base such operations.
- Real world capability to handle the civil-military aspects of occupying Iraq and aid the Iraqi regime that replaces Saddam Hussein in nation building.

The US Marine Corps could deploy one light division-sized MEF, with both land and air elements, by sea in a number of weeks and two within 30 days. US Marine Corps units are notably better organized and trained for expeditionary operations than the US army, but have limited armored and artillery strength, and limited combat support, service support, and sustainability away from amphibious and support ships.

US air and missile power can be deployed much more rapidly than US land power. The and limits on the build-up of US air forces would be set by the availability of basing, airspace access, munitions stocks, and the availability of more scarce assets like intelligence, AC&W, and ISR aircraft.

The availability of ports, staging areas, water, and POL would all be a key factor affecting the size of the US ground forces that could be deployed, and might well be so capacity limited that the US could only involve outside ground forces in a US-led coalition at the expense of cutting its own land force deployments. The availability of Kuwait, Saudi, Turkish and/or Jordanian “groundspace” would be critical to determining the size of any Western ground force that could be sustained in the region as well as the number of axis of attack, flexibility of maneuver, and logistic support requirements. In broad terms, the US Army would need more and more specialized training and specialized reorganization in proportion to the limits to the “groundspace” available and would become more dependent on air and missile power both to prepare the battlefield and provide ongoing support during combat operations.

Allied support could reduce the amount of ground forces the US would have to contribute and the time needed for preparation and deployment, but would involved trade-offs. Britain could contribute and sustain a force of several brigades, but this would force it to drawdown on virtually all of its deployable assets, equipment reserves, munitions reserves, and transportation and lift capabilities. No other European force could deploy and sustain heavy brigades in the Gulf without imposing a disruptive burden on US logistic and lift assets – even if the political decision was taken to commit such forces. France could, however, deploy at least one light regiment with significant attack helicopters and heliborne lift. (The problems French forces encountered during the Gulf War were at least partly due to the stalling tactics of the French Minister of Defense at the time, who failed to commit the assets requested by the French military.) Many other countries could contribute specialized units to compensate for shortfalls in the US Army and USMC, but significant training and some changes in communications equipment would be necessary to make them interoperable.

The land forces of the Southern Gulf states offer the potential advantage that they would not compete with US ground forces for limited port, basing, and logistic facilities, and have exercised with US forces in the past. No regional Arab ground force is effective enough, however, to play a major role in leading an offensive against Iraqi main force divisions, but Arab land forces could help secure the flanks of a US offensive, provide rear area security, and

perform peacekeeping functions. Kuwaiti involvement could present serious problems in terms of future regional tensions unless it could be managed as part of a broad effort to liberate Iraq that was followed by a form of nation-building that clearly aided the Iraqi people and involved steps like forgiveness of debt and reparations. The same is true to a lesser extent of Saudi and Jordanian forces. In general, an Arab military role in liberating and rebuilding Iraq might offer both the US and the region a much better strategic outcome than direct Arab participation in offensive ground operations.

The Turkish Army is a very different story in military terms. Once again ignoring political factors – Turkish domestic and Iraqi Kurdish and Arab fears of the Turks – Turkey could mount a corps-size land operation against Northern Iraq in less than 30 days. If such an offensive had extensive US and Turkish air support, the Iraqi army would not be capable of effective forward defense.

Current US Air and Missile Warfare Capabilities in the Gulf

The size of the air forces the USAF, USN, and USMC could contribute is likely to be base, lift, and support-limited rather than force limited. It would also be sharply affected by the level of precision munitions available and US ability to concentrate what are often relatively limited intelligence and strategic reconnaissance (ISR), airborne command and control, other expeditionary C⁴I/battle management assets to support one major regional contingency in spite of the operation against Al Qaida, and the risks posed by threats like North Korea. The US is constantly changing its expeditionary force mix to substitute precision munitions, improved targeting, and more rapid command decisions for platform numbers. Table One, however, provides a picture of the assets the US has used in other recent conflicts:

Table One
US Airpower in Recent Regional Conflicts

| | <u>Desert Storm</u> | <u>Serbia/ Kosovo</u> | <u>Afghanis tan</u> |
|---|---------------------|-----------------------|---------------------|
| Area of Operations in Square Miles | 176,000 | 39,500 | 250,000 |
| Length of War in Days | 43 | 78 | ? |
| Total Sorties During Period Reported | 118,700 | 38,000 | 29,000 |
| Offensive Strike Sorties | 41,300 | 10,484 | 17,500 |
| Sorties per Day | 2,800 | 200 climbing to 2,000 | 25 climbing to 200 |
| Percentage of Total Munitions That are Precision Guided | 7-8% | 35% | 56% |
| Combat Losses | 38 | 2 | 0 |

Note: Significant definitional problems exist in making such counts, and historical sources differ. This count is based on the work of Thomas Keaney at Johns Hopkins University.

The US could certainly rapidly deploy the equivalent of 5-7 air wings if basing, POL, water, and prepositioned munitions and critical spares were available, and rapidly build up additional forces. In practice, however, the US is strategic airlift limited and its land and air forces must compete for strategic airlift assets. Basing is also critical. The US, British and allied air forces saturated all surplus basing capability in the Southern Gulf during the Gulf War, and the US made use of Diego Garcia. This involved a total of some 23 air bases, and 11 of these – and by far the best – were in Saudi Arabia.

Major improvements have taken place in the air bases in Bahrain, Kuwait, and Qatar since the time of the Gulf War, but the US and its allies would still be seriously base limited if Saudi Arabia did not make its bases available. Access to Saudi air space would also be critical for overflights, staging offensive air formations, refueling operations, and attacking from a wide range of vectors. Access to Turkish bases and air space would be equally critical.

The US would face other limits. Any critical shortfall in precision munitions is likely to be corrected by the time the US is ready to conduct a massive air operation in support of a ground offensive. As has been mentioned earlier, the day-to-day availability of strategic airlift would be important, but so would US ability to concentrate most of its global assets of tanker, AC&W, ISR, air defense suppression, ground-based air expeditionary, and other specialized elements in support of the air campaign against Iraq – at least during the initial weeks of the campaign. This would create potential vulnerabilities in area like Korea and the Taiwan straits and could present problems for the operation against Al Qaida. These same factors would limit US capability to support allied air forces, Moreover, only the air forces of Britain, France,

Kuwait, Saudi Arabia, and Turkey would have significant *initial* interoperability with US air units in the kind of missions involved.

US carriers could substitute for land based to some extent, although intensive long-endurance carrier based missions require support from land-based refueling, ISR, and AC&W assets and emergency rescue and landing capability. As a rough rule of thumb, a carrier can deploy 60 combat aircraft that are useful in this type of combat operations, and three carriers are needed to support continuing operations 24 hours a day (two working and one in supporting, refitting and restoring capability). The US could deploy a force of six carriers to the region, although only four would probably deploy in the Gulf. The USN could, however, be support ship limited. It has made serious cuts in oilers and at sea replenishment capability since the Gulf War. European carriers – even if available -- have a much smaller aircraft load, have far less sophisticated combat aircraft, mission payload capability, precision weapon delivery capability, and sortie rate generation and sustainment capability.

As is the case with US ground forces, the use of US air and missile power also raises questions about the role service biases and military bureaucracy could play in spite of the so-called “revolution in military affairs.” US air and naval experts differ over just how far the US Army has advanced in several critical areas:

- Ability to sharply reduce the decision time and speed the targeting-strike-restrike cycle.
- Effective integration of all ISR assets and ability to reshape the mix of ISR assets to handle the specific mission requirements in Iraq, including targeting and damage assessment in urban, built-up and other civilian areas.
- Continuing problems in orienting National Technical Means (NTM), electronic intelligence (ELINT), and signals intelligence (SIGINT), to effectively support theater military operations, rather than “inform” policymakers in Washington.
- Willingness to face the real-world failure of past “strategic” strikes on leadership, logistic, infrastructure, communications, and POL targets to achieve anything like the results initially claimed in the Gulf War and Kosovo. Willingness to focus on decisive land/air operations against critical objectives like Baghdad, versus “bomb an entire country.”
- Surviving USAF bias against true jointness in the form of emphasizing close air support, military-target oriented interdiction operations, and integration of fixed and rotary wing-operations.
- Ability to honestly assess the severe remaining problems in targeting and battle damage assessment.
- Military problems in accurately assessing the ability of air and missile power to target critical dispersed infantry and land weapons targets and realistically assess damage. Process in dealing with decoys and deception.

- Civil-military problems in developing effective rules of engagement and procedure to deal with the problem of civilian casualties and collateral damage.
- Ability to use airpower to support land forces in operating across water barriers like the Euphrates.
- Willingness to take casualties to operate directly over Iraqi urban areas with heavy land-based air defenses, impact of shortfalls in electronic warfare aircraft, and problems with current anti-radiation missiles and other suppression of enemy air defense (SEAD) assets.
- Level of explicit planning to deal with the range of possible IRAQ uses of missiles and CBRN weapons.
- Real world capability to handle the civil-military aspects of occupying Iraq and aid the Iraqi regime that replaces Saddam Hussein in nation building.

The US has, however, made major advances in sea and air-launched cruise missile capability and related precision targeting capability since the Gulf War. These advances give US and British cruise missile ships and aircraft a highly reliable cruise missile strike capability and the replacement of TERCOM with GPS guidance provides 10-meter operational accuracy and allows the missile flight path to be varied in each attack -- avoiding the Gulf War pattern of flying follow-on strikes down predictable corridors because of terrain mapping needs.

US B-52, B-1B, and B-2 bombers could operate from the US and Diego Garcia. All can now deliver large amounts of precision munitions per sorties. The B-2 has extensive stealth capabilities, as does the stealth strike fighter. All could deliver precision munitions from strike points deep in Iraq, and could penetrate even within range of Iraqi cities and strong points once (and if) the US suppressed Iraqi ground-based air defenses.

Finally, Iraq has some 20-40 airfields that could be seized and occupied to create new US air bases for the combat aircraft in a US-led coalition, as well as used by attack helicopters, troop helicopters, and airlift. Many are in comparatively remote areas from Iraqi cities, air defense, and normal ground force deployments. Special Forces and light ground forces could flow in through such bases, and US Patriot units could provide forward and rear area air and missile defenses.

Land forces can also support key air warfare missions. Advancing ground troops, Special Forces, and ranger-like units can attack Iraqi ground-based air defenses, attack Iraqi command and control facilities and communications nets, and CBRN facilities. They also can now make far better use of intelligence and communications to provide GPS data and laser illumination for target air and cruise missile strikes.

Covert Overthrow

The simplest such US attack that Iraq would have to deal with would avoid any of these basing and commitment limitations on US and allied forces. It would be a covert overthrow effort, focusing on the use of outside opposition and covert efforts to support internal opposition, possibly mixed with attacks directly on the leadership of the regime by US agents or their proxies (a decapitation scenario). Iraq already seems to face such a threat. *USA Today* and the *Washington Post* have both reported that President Bush signed a Presidential Finding in February 2002 that called for (a) increased support to the opposition, including providing weapons and training; (b) expanded intelligence collection efforts within Iraq linked to both encouraging Saddam Hussein's overthrow, and gathering information and targeting data on the leadership, key military facilities, and key CBRN facilities, and (c) possible use of CIA and Special Forces teams to operate in Iraq that could kill Saddam and his leadership coterie in "self defense."³⁷ The US and Britain also seem to have made significant increases in their intelligence collection efforts in Iraq, both for overthrow and targeting purposes.³⁸

Iraq's security services are well organized to deal with such contingencies and have shown in the past that they can thoroughly penetrate opposition groups inside and outside Iraq. They have dealt with many past coup attempts and plots, and the odds of US success must be seen as limited unless the regime weakens seriously for internal reasons that currently cannot be predicted.

Amatzia Baram has analyzed this aspect of Iraqi security forces in some detail.³⁹ He reports that Saddam's immediate bodyguard is drawn from members of Saddam's al-Bu Nasir tribe, most of whom come from the area around his birthplace in Tikrit and Ujah – the village he grew up in. Many commanders in both the military and security forces also come from these towns, although the al-Bu Nasi tribe only has around 25,000-30,000 members, and Tikrit has only about 40,000 inhabitant and Ujah about 10,000. He also estimates, however, that the total number of Sunnis in affiliated tribes and regions makes up 15-17% of the roughly 19 million that he calculates are still under the regime's direct control.

The main security detachment that immediately surrounds the President is the Presidential Protection Force (Himaya or Himayat al Ra'is) which has several thousand men from Saddam's tribe and which is responsible for protecting the Presidential palaces, Saddam's various dispersed residences, and the houses of some other members of Saddam's elite. This force is recruited while young men are still 15-16 years old and they are kept in training in the palace areas for three years in order to indoctrinate them and ensure their loyalty. They have a 40-man inner bodyguard called the Murafiqin. Its top commanders hold the rank of foremost companion (Murafiq Aqdam) and general, and the group is recruited from the al-Beigat, Saddam's subsection of the al-Bu Nasir tribe.

Saddam depends heavily on the Special Security Organization (SSO or Al-Amn al-Khass), a security organization with several thousands members – many of whom are officers and come from Takrit or are members of the al-Bu Nasir. This force is under the command of Saddam's younger son Qusay and Saddam's personal secretary, General Abd Ihmid Hmud. In addition to acting on its own with decisive brutality, the SSO coordinates the activities of the

other security agencies and has been ruthless in removing suspects from within them. It controls the political prisons at Radwaniya and Abu Gharib.⁴⁰

In addition to the military intelligence and various Republican Guards forces discussed earlier, there are several thousand men in the General Intelligence Directorate (GID or Da'irat Al Mukhabarat al-Amma). While intelligence is the main function of the GID, it also has strong counterintelligence elements. According to Amatzia Baram, it has been strong enough to challenge Saddam's oldest son, Udayy, over his smuggling operations. Udayy too, however, has his own security force – the Feda'iyyi-Saddam – with some 10,000 young men who act in a police capacity, but also perform security tasks.⁴¹

Saddam has a long history of moving unexpectedly from site to site, and has more than 15 presidential compounds – or “palaces – an a number of underground shelters. He uses doubles and complex convoys for road movement, and those with access to him are subject to extensive search. He surrounds himself with a small, trusted coterie –including his sons, General Hmud (head of the SSO), Vice President Taha Yasin Ramadan, Deputy Prime Minister Tariq Aziz, and Izzat Ibrahim, the Deputy Chairman of the Revolutionary Command Council. He regularly rotates the commanders and officials in positions who could threaten him, and Tikritis and Nasiris also staff many sensitive middle and lower-ranking positions.

This pervasive security structure is the product of nearly three decades of experience with coup and assassination attempts. It has protected Saddam on many occasions, and the war in Afghanistan has shown that it is far easier to talk about attacking leaders than actually find them.

At the same time, the Iraqi regime is scarcely immune to family and tribal feuds, and conflicts over power, prestige, and money. The fact that so many are excluded from the elite, and the ruthlessness and brutality with which internal security operations are conducted, creates fault lines and possible vulnerabilities. So does the fact that Saddam and others in the elite around him only have to make one critical mistake in terms of allowing the US to target and attack them. Intelligence and targeting are never consistently perfect, but they can sporadically be truly excellent.

At a minimum, a US overthrows effort puts constant pressure on the Iraqi regime. Like the “no fly zones,” it reinforces containment, increases the credibility of any future UN inspection effort, and would aid in targeting US air and missile strikes if the US escalates to the open use of military force. The political backlash is limited by the fact that the US will be accused of such action whether or not it takes it, and such efforts scarcely violate regional practices and norms. Certainly, the death of Saddam Hussein and those around him would be celebrated by many, and mourned only by the purist advocates of human rights and international law. The US may also be more successful with a carefully targeted covert propaganda effort than it has been in its dismal overt diplomatic efforts.

At the same time, such a US effort is likely to reinforce the Iraqi regime's conviction that it must plan for much higher levels of attack on the regime, and that the use of CBRN weapons is necessary. It is also hard to argue that the US can legitimately carry out covert operations and Iraq cannot. The fact the US has such efforts underway tends to make plots against Saddam, and opposition groups with ties to the US, appear as treason. Furthermore, any conspicuous failures,

in terms of failed plots and US effort, will be seen in Iraq and the region as major victories, and will be portrayed in exaggerated terms out of any proportion to the true cost of the US.

Opposition Ground Forces and US Airpower: “Afghan Option”

A second option, and one supported by some leading analysts and officials in the Bush Administration, would be to deploy limited US ground forces, rely largely on US airpower, and use opposition ground forces – possibly stiffened by US special forces and advisory teams – to try to defeat Saddam’s regime. Variations on this contingency involve creating a US military “sanctuary” for the opposition inside the Kurdish security Zone, Kuwait or Western Iraq, and/or relying heavily on defections of Iraqi military forces and commanders as a result of US and Iraqi opposition covert action.

The Use of Opposition Ground Forces

As has been discussed earlier, the depth of the real-world loyalty of the Iraq military and security forces is a key “intangible.” In spite of Saddam’s long history of detecting and suppressing coups, success in using carrots and sticks to enforce loyalty, and the weakness of the opposition, many other repressive regimes have suddenly failed to deal with internal threats in the past.. No one can conclusively dismiss the idea that the Iraqi regime and its military forces might suddenly collapse if put under serious pressure. There also is at least the possibility that such a collapse could be speeded by some form of decapitating strike on the Iraqi leadership by US Special Forces, airpower, and/or agents.

The only current opposition force with any real-world military capability is the Iranian-backed SAIRI, which the US is not currently likely to support or wish to have involved. While some of the other Iraqi opposition groups outside Iraq have made grossly exaggerated claims about their ability to train military forces and conduct some kind of military operation to liberate Iraq, these claims are little more than political posturing. There may, however, be enough volunteers to provide several light regimental equivalents. Training and equipping such forces would take time, and could not produce forces that could challenge regular Iraqi forces in combat, but might form a core of opposition forces that would lead some regular Iraqi forces to defect.

There are a number of senior Iraqi military defectors, out of a total of up to 1,500 ex-Iraqi military living abroad, and some may still have support from the military forces in Iraq. The Iraqi National Congress has attempted to organize these defectors, and has had some success. It held a meeting of such officers in London in July 2002, and created a 15-man Military Council with ex-Brigadier-General Tawfik al-Yassiri as its spokesman. However, only about 50 out of the INC’s 90 invitees showed up, and many remain separate and aloof. These include General Nizar al-Khazraji, a former army chief of staff, who is the one defector who can legitimately claim to have been a major hero in the Iran-Iraq War, but whose role in the attack on Halabja is uncertain.⁴²

While the lessons of the US and British military experience in Afghanistan may not translate directly into warfighting experience in Iraq or any other case, they do show that factors like political and military leadership, morale, adaptability, and other intangibles could again lead

to a far more rapid Iraqi collapse than Iraq's force numbers and Saddam's past ability to survive coup attempts would indicate.

The size of Taliban and al Qaida forces in Afghanistan -- and the past performance of Afghan forces in their struggle with the forces of the former Soviet Union -- proved to be a poor measure of actual Taliban and al Qaida war fighting capability and endurance. It was not possible to predict how long Serbian forces would hold out in Kosovo, or to tie estimates of battle damage either to confirmed kills or to Serbian political behavior. Similarly, the force ratios at the start of the Gulf War gave a greatly exaggerated picture of Iraqi military strength. So did Iraq's performance in the final battles of the Iran-Iraq War.

One key uncertainty is the extent to which the US would risk a major "decapitation" strike by CIA operatives, Special Forces, and/or air and missile strikes to kill or capture Saddam, his sons, and the other leaders of the regime, and how successful such a strike would be. Saddam Hussein's rule is highly centralized and personal. Aside from his sons, and a handful of those closest to him, there is little to hold it together if he should be captured or killed, and the cohesion of military operations and the operations of the security forces would be very uncertain *if* a decapitation option could really be executed. (It is far easier to postulate success, than to achieve it.)

The Limits to the Afghan Lesson

At the same time, the success of any effort that relies on the opposition and defections to do the ground fighting and deal with the problem of nation building seems unlikely. The military capabilities of the opposition are negligible compared to those of the Afghan warlords opposing the Taliban, and an "Afghan option" that relies largely on opposition forces with a limited stiffening of US special forces and limited amounts of strike airpower, does not seem likely to succeed.

The collapse of the Taliban took place with less than 300 forward deployed US Special Forces and roughly 80 US strike/attack sorties per day in support of the Northern Alliance. However, the defeat of an extremely weak opponent, like the Taliban is very different from fighting a much stronger opponent, like Saddam Hussein's Iraq. Iraq is a far better organized, stronger, and more popular tyranny. It is a power with both modern internal security services and 2,200 tanks, and heavy armored forces capable of serious war fighting. It retains an active air force and, more importantly, has rebuilt much of its land-based air defense net, and has large numbers of surface-to-air missiles, radars, underground command centers, and redundant optical fiber command and control communications. It has at least some chemical and biological weapons, and probably some surviving Scuds and extended range Scuds.

Iraq has considerable strategic depth and it is much easier to talk about the regime's unpopularity than to know what the population will actually do. Iraq is a nation of roughly 437,000 square kilometers or twice the size of Idaho. Although it has a coastline of only 58 kilometers, it has long borders the regime can use to obtain access to other states. The border with Turkey is 331 kilometers. It is 181 kilometers with Jordan, 242 kilometers with Kuwait, 814 kilometers with Saudi Arabia, and 605 kilometers with Syria.

The sheer size of Iraq's population would make it a problem for small opposition forces to take over the country -- as well as present problems for any larger invasion force and nation-building effort. For all of Iraq's claims about hardship and high death rates, it has one of the most rapidly growing populations in the world. Iraq now has a population of over 23 million, and well over 60% of this population was born after Saddam took power and has known no other ruler. Well over 30% has been born since the Gulf War.⁴³ The CIA estimates that over 271,000 young Iraqi males reach military age each year, and that Iraq can draw on a military manpower pool of over three million.

Iraq is vulnerable because of its ethnic divisions (Arab 75%-80%, Kurdish 15%-20%, Turkoman, Assyrian or other 5%) and religious divisions (Muslim 97% (Shi'a 60%-65%, Sunni 32%-37%), Christian or other 3%). In the past, however, many Iraqi Shi'ites have been loyal to the regime, and the size of the Shi'ite uprisings in the south in 1991 is often exaggerated. It is not clear how many Iraq Shi'ites would see a US sponsored opposition as "liberation" versus an "invasion." Once again, such factors are intangibles that *might* greatly reduce the need for opposition forces, but there is no way to predict what will actually happen. Furthermore, Kurdish and Shi'ite religious forces might well be seen as traitors by at least part of the Iraqi population.

Some of the uncertainties inherent in military "intangibles" could also favor Iraq. For example, Iraqi nationalism -- and hostility to the US because of the Gulf War and US sanctions -- could harden Iraqi military and popular resolve and produce stiffer resistance than during the defense of Kuwait. Planning on the virtual collapse of the Iraqi regime is planning for a possibility and not a probability. To put this in context, the speed of the catalytic collapse of the Taliban and Al Qaida was always *possible*, but it was never *probable* or *certain*.

How Much US Airpower is Enough? The Iraqi SEAD Challenge

There are dangers in using limited amounts of US air and missile power, as well as in relying on opposition ground forces. The US has shown again and again, that it has outstanding military forces and can make effective use of modern technology, but skill and technology are not a substitute for sufficient force and effective tactics. Over-reliance on airpower, particularly limited amounts of airpower, can have serious consequences.

One key uncertainty would be how rapidly the US could suppress Iraqi surface-based air defenses in the populated areas, the level of US airpower that would have to go into the Suppression of Enemy Air Defense (SEAD) mission, and the effectiveness and survivability of short and medium land-based air defenses in dealing with attack helicopters, other helicopters, and fixed wing aircraft forced into relatively short range engagements.

Much of the US and allied success in Bosnia, Kosovo, and Afghanistan has depended on the almost immediate achievement of near-total air supremacy and the ability to engage enemy ground forces in ways where they could make only limited or no use of their armor or artillery against US and allied forces -- aside from local allies and proxies.

The US has shown that stealth, long-range stand-off munitions, and the use of unmanned aerial vehicles (UAVs) and unmanned aerial combat vehicles (UACVs) offer ways to greatly improve some aspects of SEAD capability and to target and attack even when extensive land-

based air defenses are present. Nevertheless, SEAD remains a challenge in dealing a well-equipped and relatively sophisticated opponent like Iraq, and much still depends on the sophistication of the opponent's air and air defense assets, as well as the skill and determination with which they are used.

The problem would be particularly critical in the case of Baghdad and Iraq's major cities. Its land-based air defense system is designed primarily to protect its major urban areas, and key firing units could be relocated to create even greater problems in striking them without hitting civilians or producing collateral damage. Iraq would not need to deny the US air supremacy throughout most of Iraq, but would instead need to be able to degrade US ability to operate over urban areas. This would allow it to keep most radars off most of the time, and "pop on" sporadically to fire at US and allied aircraft that would have to operate in more or less predictable areas.

How Much US Support is Enough? The Strengths of US Strike/Attack Air and Missile Power

Another uncertainty is the level of US strike attack forces that would be needed relative to a given ground component, and their effectiveness against different Iraqi tactics in different scenarios.

No one can dismiss the potential impact of new strike/attack and ISR tactics and technologies on any fighting in Iraq. According to General Tommy Franks, the US had flown an average of 200 sorties a day in Afghanistan by early February 2002, versus 3,000 a day in Desert Storm. It was, however, able to hit roughly the same number of targets per day as in Desert Storm.⁴⁴ General Franks stated that the US needed an average of 10 aircraft to take out a target in Desert Storm; a single aircraft could often take out two targets during the fighting in Afghanistan. There also was much greater surge capability to use precision weapons against a major array of targets. In one case, the US fired roughly 100 JDAMs in a 20-minute period.⁴⁵

Part of the ongoing shift towards the use of precision weapons is indicated by the fact that some 6,700 of the 12,000 air weapons the US dropped by December 7, 2001 were precision guided or 56% of all weapons dropped. Later estimates indicate that roughly 10,000 weapons were precision weapons, out of a total of 18,000 dropped by early February, or still 56%. This compares with 35% of the 24,000 weapons dropped during the Kosovo campaign in 1999.⁴⁶ It is also worth noting that the ability to correct the dispersal of unguided submunitions for wind, and greatly improved navigation and targeting capabilities also made the delivery of unguided weapons far more precise than it had been in the past.

The US not only placed added reliance on precision guided weapons in Afghanistan, it exploited the new abilities of US forces to draw on greatly enhanced real-time satellite, U-2, JSTARS, Rivet Joint, and UAV data on the movements of enemy and friendly forces, to target enemy forces with high precision in real time even as they were engaged by Afghan ground forces, to communicate this targeting data to US bombers and strike fighters, to use the data to conduct precision strikes with both precision guided weapons and area ordnance, and then at least partially assess damage as well as retarget and restrike almost immediately did involve a wide range of advance in tactics and technology. The US was able to "close the loop" in

conducting air and missile strikes in near real time. It was an impressive further development of techniques that owe their origins to the use of spotter aircraft and kill boxes in the Gulf War and which were significantly further developed in Kosovo.

A number of the tactical encounters between US and Al Qaida forces have shown that air power can be far more effective and responsive in the close support missions, and for precision weapons to act as a partial substitute for artillery under conditions where the enemy does not have high quality short-range air defenses or large numbers of heavy weapons. A combination of fixed and rotary wing aircraft performed such missions well during the fighting at Tora Bora. Airpower and proper ISR-land-air asset management can substitute for armor and artillery in some engagements

How Much US Support is Enough? The Limits to US Strike/Attack Air and Missile Power and Key Uncertainties Affecting the Iraqi Response

It is dangerous to over-generalize on the basis of US success in recent fighting, however, since much of that success depended on rapidly achieving near-total air supremacy and US-allied ability to engage enemy ground forces in ways where they could make only limited or no use of their armor or artillery against US and allied forces – aside from local allies and proxies. If the US air component is too light, US and allied forces might have had the time to spend several weeks winning air superiority and carrying out the SEAD mission. The ground component would then need more support from attack helicopters and gunships, and have to be equipped with substantially more mobile artillery and armor.

It is all too easy to assert airpower can be decisive while sitting in an arm chair, but sending light forces against heavy forces presents major risks, and the ongoing improvements in US strike-attack capability do not allow limited amounts of airpower to perform miracles or airpower to be decisive in many types of close engagements.

In broad terms, the lighter the opposition (and US/allied) ground forces, the heavier the US air and ISR element must be. However, there are no precedents for precisely estimating the required force ratios. Furthermore, the more intense the air campaign, the more precision munitions and advanced area munitions will be needed, and munitions and ISR asset scarcity could become an issue in some cases.

This makes it dangerous to count on limited or moderate amounts of US airpower and predictions of what levels of US/allied air forces would be required over what time. It is equally difficult to determine what kind of ISR and targeting assets would be needed (and there are serious limits on many of the assets involved and substantial numbers are tied up in Afghanistan), and how this would affect the assets available for the strike/attack mission.

Iraqi ground tactics may be able to make a major difference. Open desert operations would make Iraqi forces very vulnerable. Attacking Iraqi forces located in built-up and urban areas, sheltering in civil populations, and making extensive use of deception and decoys would be far more difficult. US contingency needs for airpower and ISR assets could also escalate rapidly in a matter of hours if a US, allied, or opposition force should get into serious trouble in a land engagement and an Iraqi force closed determinedly and pressed the attack.

Since the beginning of US military action in world War II, the US military also has a long, consistent, and history effort of exaggerating its targeting, strike, and battle damage capabilities, of defining failure and partial success as effectiveness, and of being unable to accurately estimate civilian casualties and collateral damage.

While General Franks has testified to the Senate Armed Services Committee that that the US needed an average of 10 aircraft to take out a target in Desert Storm, but a single aircraft could often take out two targets during the fighting in Afghanistan, it seems virtually certain that these figures will ultimately prove to be just as unrealistic as the initial battle damage claims made in the Gulf War, Desert Fox, and Kosovo.⁴⁷

To be blunt, the US military services and intelligence community simply do not yet have a credible battle damage assessment (BDA) capability against most types of targets, and greatly compound their assessment problems by preventing operations analysis teams from entering the theater during combat. The US has made use of an ever-changing set of rules that transform vague and inadequate damage indicators into detailed estimates by category and type. The rules and methods used in BDA have only crude analytic controls, and cannot survive simple review methods like blind testing. Guesstimates rely heavily on imagery that cannot look inside buildings and shelters, which often cannot tell whether a weapon was inactive or had already been damaged by other kinds of fire, and which is essentially worthless in estimating infantry and human casualties.

US ability to characterize sheltered and closed-in target remains weak, as does its ability to assess and strike at hardened targets. This remains a major problem in the case of nations that make extensive use of such facilities, like Iraq and Iran, but it is important to note that US sensors and teams on the ground never succeeded in characterizing many much simpler Taliban and Al Qaida facilities like caves. For example, the Navy SEAL team that explored the cave complex at Zhawar Kili in February had no idea that it would turn out to be the largest complex yet uncovered, and had to physically enter the area to determine that the US air strikes on the facility had had little or no effect and left large stocks of supplies intact.⁴⁸

The US has better ability to assess physical damage to surface buildings, but limited ability to assess damage to their contents. Its ability to assess functional damage to complex systems like land-based air defense systems, and the resulting degree of degradation in their operational capabilities is also generally weak. The US had major problems in these areas in the Gulf War, Kosovo, and in ten years of strikes against the Iraqi air defense system. The US had – and still has -- major problems in locating key targets, like the leadership of hostile powers or the facilities and forces related to weapons of mass destruction.

Iraq poses a particularly serious challenge in terms of efforts to suppress and destroy missiles and CBRN weapons. More broadly, the ability to reliably perform battle damage assessment remains a weak link in the US ability to “close the loop” even in dealing with conventional military targets like armor, major weapons, depots, and infantry. For all the US successes in Afghanistan, it is yet another warning that “closing the loop and many other potential advantages of the “revolution in military affairs” requires far better strategic assessment and intelligence capability to determine the nature and importance of targets, better ways to assess their strategic impact and the impact of striking them, and an honest admission by the US

military services and intelligence community that its battle damage assessment methods are crude and inadequate, if not actively intellectually dishonest.

The Nation-Building Problem

The “opposition ground force” option also presents the most risks in terms of “nation building.” With or without a successful decapitation strike on Saddam and those around him, it presents the problem that air power cannot occupy populated areas, or prevent some general or more political warlord from trying to take power. The one thing Iraq’s weak and divided opposition elements have in common is their lack of real-world political power and popularity inside Iraq, and even if some “coalition of the impotent” could be imposed initially on Iraq from the outside, it is doubtful that it would last.

The argument that, “anyone would be better than Saddam” is tempting, but using military force to create a political vacuum in the Gulf could simply end in replacing “Saddam A” with “Saddam B,” and creating a quieter and more subtle militarist that still proliferated, had military ambitions, and gave economic development limited priority. It also might do little to create a truly national government and deal with Iraq’s ethnic and religious problems.

The High Cost of Failure

There also are serious risks to the US and its allies in executing any option that ends in failure, and this could come from over-reliance on the Iraqi opposition with only limited US military capability in place around Iraq. The cost of failure would be high because:

- It would be a massive propaganda victory for Saddam Hussein, and largely discredit efforts to mount a larger-scale follow-on operation in Turkey, the Gulf, and the Middle East.
- There would be no way to decisively protect those involved in the attempt on Saddam Hussein’s regime. A “Bay of Kurdistan” or “Bay of Basra” would probably be even more costly for those involved than the “Bay of Pigs.”
- International support for UN sanctions and inspections could be gravely undermined or vanish.
- The security of the Kurdish enclave would at least be at risk.
- The fact that the outside opposition is so heavily penetrated by Iraqi intelligence, as internal opposition elements may also be, could lead to Iraq carrying out its own decapitation strikes on the leaders of the opposition.
- It seems doubtful that the US military presence would be large enough to provide both the needed air effort to overthrow Saddam and suppress any use of CBRN weapons, and a weak assault on the Iraqi regime is the one where Iraq might gain most by firing missiles or CBRN weapons on Israel in an attempt to try to win the support of other Arab states, and possibly even drag them into the conflict.

- The US presence on the ground would be far too limited to shape the future structure of Iraq, limit any civil fighting or Kurdish and Shi'ite separatism, and ensure the deterrence of Iranian adventures in Southern Iraq.
- Regardless of the initial leader that replaces Saddam, if such an effort was successful, it seems likely that some form of Iraqi strong man would rapidly emerge, possibly from within the military. "Saddam A" might be replaced by "Saddam B."
- It is also unclear that the success of such an option would lead the successor to get rid of Iraqi CBRN and missile capabilities, given the broad spread of proliferation in the area, the growing threat from Iran, and Iraqi nationalism.
- A lingering battle, or opposition defeat, is the case most likely to have a serious destabilizing impact on the world oil market.

“Attack from the North Option”

There are other versions of an “opposition heavy” option, however, that involve less risk. One alternative would be to use a significant number of US ground troops to attack from the North. This is an option would obviously require full Turkish and Kurdish cooperation – a political condition that does not now exist. However, if such cooperation can be obtained, this options would rely heavily on supporting Iraqi opposition ground forces with a major US land force build-up in the Kurdish security zone. Some discussions of this option call for somewhere between 25,000 and 50,000 troops equipped with attack helicopters and some heavy armor.

In some scenarios, such a force would rely heavily on a mixture of attack helicopters and assault forces to conduct air assault operations and by pass Iraqi strong points, similar to the kind of operations the 101st Airborne conducted in Kuwait during the Gulf War. Such operations would limit Iraq’s ability to take advantage of terrain and military operations in built-up areas (MOBA). It would also exploit the fact that Iraqi forces tend to be slow moving except when they move by road and make extensive use of tank transporters, and any such movements would make Iraqi forces far more vulnerable to US air power.

The US ground force would lead the attack, but would still be supported by significant Kurdish and other opposition forces – which had significant additional training and equipment, and a large Special Forces contingent present to assist them. They would be backed by a major US air support effort, including air cover, air support, and a strategic bombing effort.

The end result is an “air-heavy, opposition heavy, US ground force light” option, and Iraq would have several potential advantages in dealing with it. It would take time to build-up such a group of forces, and Iraq could infiltrate and attack the Kurdish security zone, taking losses to US air strikes, but potentially disrupting the US build-up. Turkish and Kurdish support would be uncertain and possibly fragile due to Iraqi political pressure. It also means attacking through Sunni areas and the cities and areas most likely to be loyal to Saddam once the attacking force advances beyond the Kurdish security zone.

Such an option could be combined with a US attack from the South. This would obviously further reduce the risks involved, put far more pressure on Iraqi military capabilities, and limit the risk of US failure.

US Operations in a Major US-led Coalition Military Effort

Larger scale US military intervention could take on a number of different forms, and once again, there is no magic number of forces or troops that would be necessary. Two different sets of variables are involved in making a dynamic net assessment: One deals with the options open to a US-led coalition, the other with the options open to Iraq.

First, the US can almost certainly win a conventional struggle to overthrow Saddam Hussein's regime. The issue is not so much the ability to win, but just how much force is necessary, the speed and decisiveness with which the US does win, and the resulting political and military costs. Civilian casualties and collateral damage will be obvious problems, but so will the ability to occupy Iraq in ways that ensure its stability and lay the groundwork for effective nation building.

A US-led coalition can take many different forms, and can attack Iraq in a number of different ways. For example, a US attack does not need to begin with a long build-up in the region in a form where *all* ground forces are in place before the attack begins. In short, the US can begin with a paralyzing air assault and limited ground forces in place, and reinforce with follow-on forces -- or it can repeat the Gulf War experience of building up decisive force before combat begins. Both options have different strengths and weaknesses, and the US has an obvious incentive to deceive Iraq as much as possible as to which option it will execute and just how much coalition support it does or does not have. War by "leak," does not have to mean war by accurate "leak."

In broad terms, however, the US seems to have two major options for a major land-air intervention in Iraq: a "coalition-heavy" or "coalition-light" strategy.

A "Coalition Heavy" Strategy

A "coalition-heavy strategy would involve Turkey, Kuwait, Qatar, and possibly Saudi Arabia -- giving the US extensive depth and scale for air options and the ability to vary its axis of attack(s) and strike from the West directly at the center of the Iraqi's regimes main bases of power, plus make maximum use of attack helicopters, air mobility, and the rapid creation of helicopter and special forces bases deep inside Iraq.⁴⁹ The role of Saudi Arabia is unclear, but most press reports seem to indicate that the US would at least seek the ability to use Saudi airspace, and would like to use the air command center in Riyadh and Prince Sultan Air Base -- although it is planning to create an alternative at the Al Udeid air base in Qatar.

A massive initial air offensive would use the highly detailed strike plans the US has refined since the Gulf War to strike at ground troops, security forces, leadership targets, communications and C4I/BM targets, depots, airfields, air defenses, and selected road links to cripple and paralyze Iraqi forces while suppressing Iraq's ability to use weapons of mass destruction. Land-based air power would be supported by extensive use of sea-based air and

missile power, and covert operations might be used to both strike at Iraqi CBRN and missile targets and at selected leadership targets. There is some

The US would use a mix of heavy and light ground forces, plus attack and assault helicopters attacking along several different axes. The exact mix of such a US Army-US Marine-Coalition ground force is unclear, and the US Army might well choose to assemble the contemporary equivalent of its “Stryker” forces by mixing limited amounts of heavy armor and artillery with lighter equipment in force mixes tailored to specific tactical missions. Estimates of the size of the force have range from three to five division equivalents of US Army forces and 120,000-250,000 men, up to two USMC division-sized expeditionary forces, 25,000 British troops, and from 5-15 US air wings.⁵⁰

It is unclear, however, that anything like the highest levels of such force estimates reported in the press would be necessary even in the “coalition heavy option,” and that such “leaks” are anything more than speculation. There are Army officers outside the US planning staffs working on this contingency who firmly believe that the US Army would take a traditional approach to requesting massive ground forces and long periods of preparation in the US and in the theater before beginning the land phase of the war. There are other US officers who see the constant flood of reports requiring massive US forces as part of a deception operation capitalizing on a seemingly endless media appetite for apparent leaks of war plans.

In any case, a “coalition heavy” strategy might involve the following military considerations:

- Iraq would encounter serious problems in trying to defend against an attack on its cities from the West. The Gulf War showed that armor and assault helicopter forces can strike deep into Iraq from across the Saudi border and move rapidly through the desert towards points like Karabala, An Najaf, As Samawah, etc. If Jordan would support US basing, the possibility would open up of a more direct thrusts across the desert towards Ar Ramadi. There are substantial Iraqi Army, Republican Guards, and Security Forces in these areas but they would have to move into the desert for any forward engagement – where they would be vulnerable to US airpower – or try to use cities and the water barriers formed by lakes and the Euphrates as defensive positions. In doing so, they would risk being bypassed and could still be subjected to precision air attack.
- Iraq would be better positioned to defense against a direct attack north from Kuwait towards Al Basrah and Az Zubayr and then north along the roads next to the Euphrates, Nahr al Gharraf, and Tigris towards Karbala, Al Kut, and then Baghdad. There are significant water barriers and urban areas that would aid Iraq in its defense and it has significant forces in the area.
- At the same time, US armored and helicopter forces would have superior mobility, and US airpower could cut Iraqi lines of communication and bridges, and sometimes isolate Iraqi forces. Some popular uprisings might take place in Iraqi Shi'ite towns and cities, and the road net north from Kuwait is excellent.

- Driving south from Turkey would involve mountain warfare at least until US and allied forces reached the outskirts of Mosul, but there are several major roads south towards Bayji/Tikrit and Baghdad. Once again, Iraqi forces would be slower to maneuver, vulnerable to precision air attack, and subject to bypassing and isolation by combinations of US helicopter and assault forces. Such an attack would have to drive through Sunni areas that are likely to prove most loyal to the regime, but this *could* allow a major advance from the north to seize Tikrit and have a major political impact of Iraqi morale and resolve under best-case conditions.
- The US does not have to conquer Iraq, merely isolate and defeat Saddam. The regime may not be fragile enough to produce uprisings and mass defections, but few are likely to rush into rescue it. If the US thrust directly toward Baghdad, or any other central refuge for the regime, it might well be able to largely ignore the rest of Iraq. While the US cannot count on the collapse of the Iraqi armed forces, Saddam cannot count on their aggressive loyalty and willingness to counterattack.

A “Coalition Light” Strategy

A “coalition-light” strategy would rely on land forces staging out of Kuwait and some of the other smaller Gulf states, plus amphibious and over-the-beach build-ups. It could rely on less overt Turkish cooperation, but would involve US ability to conduct air operations from Turkey -- at least until a forward base(s) could be seized, secured, and made operational in Iraq. The US might base air operations out of Bahrain, Qatar, the UAE, and Oman, without active support from Saudi Arabia.

- The main limitations in this approach would be the need to strike along a largely predictable axis with limited ability to use air mobility, and through an area with significant populated areas and water barriers. The Kuwaiti border is long enough, however, so that it is possible that the US could still mount an attack on Iraq from the West using a line of advance across the Wadi al Batin or moving towards Al Bussayyah.
- US willingness to strike decisively at Iraq’s infrastructure, in spite of the political backlash and nation-building problems this raises, will be an issue in all attack scenarios. The willingness to hit hard enough to halt round movement, create water barriers and limit Iraq’s ability to move by road, and make it difficult to use towns and cities as sanctuaries, is critical to US ability to exploit Iraq’s relatively slow maneuver capability and heavy dependence on roads, tank transporters, and flooding supplies forward to compensate for the inadequacies of its logistic system. It is also critical to making use of the shock power of air and missile strikes, rather than simply relying on damage and attrition, and such shock power is often at least as important as casualties and material damage.
- Much would depend on US willingness to use new tactics to take advantage of attack helicopters and heliborne assault forces. The 101st Airborne demonstrated during the Gulf War that large mixes of attack helicopters and heliborne assault forces can rapidly stage forward and can engage even heavy armored forces using missiles like

the Hellfire. These missions were part of a massive armored advance during the Gulf War and took place against an enemy already in retreat. Some argue, however, that US air power can now secure forward staging bases against an Iraqi armored advance, and that even if US forces were forced to retreat and regroup, the Iraqi armor would become so exposed to US air strikes in the process of attacking such US attack helicopter and heliborne assault force staging bases that they would take unacceptable casualties.

- The US Army is exploring a somewhat similar option for using armored forces. Traditionally, armored advances require extensive ground troops to secure their flanks. The Army is experimenting, however, with the idea of sending armored or mechanized thrusts directly at critical objectives, and using air power to secure the flanks of such forces, halt counterattacks, and allow the advancing force to bypass enemy strong points. Only professional military officers can assess the cost-benefits of such operations in Iraq, but they could significantly reduce the level of US forces required.
- Much also depends on US Army willingness to develop new mixes of armor and light mechanized forces similar to the new Stryker or interim combat brigade teams it is developing as an interim approach to “Army of the future.” Altering this mix could allow the US to use far fewer heavy tanks, other armored vehicles, and artillery weapons and still preserve a core of advanced heavy forces. In fact, such a mix may be essential even in the near term since the Army’s efforts to develop lighter armored combat vehicles have so far failed to solve the problem of size and lift will be “cubic capacity” rather than weight limited once they are deployed.
- The US would benefit in all contingencies from having time to prepare some aspects of the battlefield. The US has limited ISR assets and such assets can greatly improve the effectiveness of a given amount of US airpower, as well as support US and allied ground forces. The US has shortfalls in some categories in munitions and is still expanding its prepositioning and support facilities in the smaller Southern Gulf states. Full access to Bahrain, Kuwait, Oman, Qatar, and the UAE would be critical in such a contingency, particularly to expanded air facilities in Bahrain, Kuwait, and Qatar such as the Al Udeid Air Base.

Amphibious and Vertical Envelopment Operations

An amphibious attack is technically possible. An over-the-beach operation only makes sense except as a feint, given the mix of terrain and water barriers involved, and the relatively poor strategic position offered by deploying US forces on Iraq’s small coastline. However, US Marine Forces might be used in a heliborne vertical envelopment to attack key Iraqi facilities in the south that did not have heavy armor and firepower. They could also be combined with the Special Forces of other services, which could make use of amphibious ships as joint “lily pads.”

The Al Basrah, An Nasiriyah, and Al Amarah areas would present problems for Iraq if the US even feinted against such cities. The Iraqi regime could not count on Shi’ite loyalty, and it would lack the air combat and survivable heliborne mobility to counter US assault helicopter

movements. This could mean either abandoning key cities in the south or tying down significant Iraqi ground troops out of the relatively limited number of high quality divisions the regime can count on.

The Value of Strong Coalition Military Support

Much will depend on the United States' ability to obtain political, military, and basing support from key regional powers, like Turkey and Saudi Arabia, as well as the support of the smaller Gulf states, and world opinion. The fact that the US might be able to destroy Saddam's regime with minimum foreign basing and coalition support is scarcely an incentive to attack Iraq in this way, and a US effort to attack Saddam's regime without broad regional support would severely limit the flexibility and depth of the US air and land attack, provide the Iraqi regime with major propaganda advantages, and present major problems in effective postwar nation-building.

Depths of land and air operations are important and depend on allied support. A two front US-allied air operation with ample depth for refueling, basing, staging task groups, and flying ISR assets is a major advantage, but requires access to Turkey and either Saudi Arabia or access to all of the smaller Gulf states. A multiple-axis advance in the south is far easier with forces in Saudi Arabia and advancing from both the north and south would put far more pressure on Iraq forces, as well as provide more political control.

Iraq does have large numbers of civilian and military air bases, some of them comparatively isolated in desert areas or away from built-up areas. The seizure of bases in Iraq could substitute for reliance on allies, allow the rapid staging of US attack helicopter and assault forces, and confront Iraq with either having to attack under conditions where its forces would become more vulnerable to US airpower or see a major, sudden improvement in US staging capability.

How Much US Force is Enough?

While various analysts and journalists have quoted figures for US manpower requirements, such estimates are little more than military drivel. The number of men engaged in battles had little impact on their outcome as early as the US civil war, and the type and quality of forces has long been critical. The US Joint Staff has clearly developed a range of contingency plans to attack Iraq and overthrow Saddam Hussein's regime, although President Bush has not approved any give option. These options involve a wide range of force mixes, assumptions about coalition warfare, and methods of attack. The US can alter the mix of air and land power to stress air power, put in significant armor and other heavy forces, and deploy different mixes of air assault and attack helicopter forces.

"Decisive force" would probably have to involve the early commitment of at least several US division equivalents, including heavy armored forces and major air assault and attack helicopter forces, several wings of US combat aircraft, and a mass land-air support effort involving very substantial C⁴/BM, ISR, electronic warfare (EW), and dedicated intelligence assets. It is also far easier to send underutilized forces home after a conflict, than compensate for shortfall during a conflict.

US willingness to use air and missile power decisively, and to exploit what is likely to be rapid air supremacy, will sharply affect Iraq's ability to maneuver, reinforce, supply, and cross water barriers. It will be equally important in determining Iraq's ability to shelter in cities and use human shields, and in suppressing Iraqi ability to preserve its CBRN weapons and missiles. There will, however, be obvious tradeoffs in terms of civilian casualties and collateral damage, including serious potential damage to Iraq's infrastructure if the US wish to isolate cities, shatter LOCs, and inflict major coercive damage on those cities and towns that become redoubts for the regime.

Even with high levels of US forces, much would still depend on how rapidly the US could suppress Iraqi surface-based air defenses in the populated areas, the level of US airpower that would have to go into the Suppression of Enemy Air Defense (SEAD) mission, and the effectiveness and survivability of short and medium land-based air defenses in dealing with attack helicopters, other helicopters, and fixed wing aircraft forced into relatively short range engagements. The issue would not be whether the US could succeed, but what levels of force would be required over what time, what kind of ISR and targeting assets would be needed (and there are serious limits on many of the assets involved and substantial numbers are tied up in Afghanistan), and how this would affect the assets available for the strike/attack mission.

Once again, the US and its allies cannot predict how much strike/attack airpower will be needed to deal with a given Iraqi force in a given position. Open desert operations would make Iraqi forces very vulnerable. Attacking them in built-up and urban areas, sheltering in civil populations, would be far more difficult. Similar problems arise in trying to estimate contingency needs if a US, allied, or opposition force should get into serious trouble in a land engagement and an Iraqi force closed determinedly and pressed the attack. In broad terms, the lighter the ground forces, the heavier the air must be, but there are no precedents for accurately estimating the required force ratios. Furthermore, the more intense the air campaign, the more precision munitions and advanced area munitions will be needed, and scarcity good become an issue in some cases.

Having sufficient ground forces to occupy large areas in Iraq will be critical to ensuring that ethnic and civil conflicts do not take place, that there are no Iranian-sponsored adventures, and that air efforts to suppress Iraq's CBRN forces can be reinforced with effective efforts on the ground. Significant Arab and Turkish support for such missions would be of major help in reducing any Iraqi nationalist reactions, or religious tensions, but could not substitute for a US-UK ground presence.

The Factors Shaping Iraqi Operations in a Major US-led Coalition Military Effort

Iraq cannot hope to win a conventional war in the face of decisive US force, but it does have a wide range of options, and some might be effective in the face of inadequate US and coalition force levels:

- The key battle is already underway and is largely political. Iraq's best strategy is to defuse the political momentum for a major US attack on Iraq, and to win as much Arab support as it can. This means strengthening the political accommodation it has already reach with other Arab states – including Kuwait and Saudi Arabia – and attempting to

win broad Arab political support through its support for the Palestinian cause in the Second Intifada. Some form of Iraqi accommodation in terms of resuming UN inspections is another potential option, although one that Saddam and other hard-liners in the regime is certain to be reluctant to take. Using oil wealth and control over much of the media to mobilizing popular support is another approach the regime is taking and one that both deters US military action and strengthens Iraqi operational capabilities. In contrast, the US faces the backlash from the Second Intifada, has been unable to mobilize Arab or European support for a war tied largely to the threat of proliferation, and has no smoking gun in terms of Iraqi support for terrorism.

- The worst Iraqi option is to repeat the mistakes of the Gulf War and send its best forces out into the desert where they are most exposed and have the least air defense. Some counterattacks and raids may be needed, but a forward defense strategy is the one most vulnerable to US military action. Similarly, digging in forward areas, and the extensive use of static forces and earth barriers, could be useful in defending Basra and a few critical lines of communication, but makes Iraqi forces easy to bypass and outmaneuver.
- A city-populated area based strategy presents the most problems for the US in using air power effectively, and provides the most political advantages in exploiting collateral damage and civilian casualties. It also is unlikely to lead to uprisings or opposition action as long as loyal forces are in place and willing to fight.
- Iraq may be able to exploit water barriers against heavy US forces, but is more likely to lose bridges and road mobility to US airpower. Pre-positioning forces and supplies to defend a limited part of the country with the most loyal population and most critical cities – an urban redoubt strategy -- offers more survivable flexibility than either a forward deployed or central reserve strategy. Iraq's surface to air missile system also supports such a strategy.
- Some form of Iraqi redoubt and scorched earth strategy is also an option. Iraq set Kuwait's oil fields on fire during the Gulf War, and might well try to use the oil weapon in such a contingency. It has already talked about oil embargoes in the context of the Second Intifada, and Saddam Hussein might well see burning Iraq's oil fields and CBRN attacks on major Gulf oil fields as both a defense and form of revenge. Iraq could also combine such a strategy with falling back on a largely Shi'ite dominated "redoubt" by using the cities and towns in North Central Iraq for its defense while leaving as much of a scorched earth as possible in the areas of a US-led coalition advance.
- Fighting delaying actions inside urban areas offers Iraq a way of using human shields, limiting US air strike capability, and forcing US-led coalition forces to fight on the most restricted terms. It cannot win against mobility and decisive force, but it is certain to be more effective than putting infantry in earth barriers – the "speed bump" strategy that Iraq used in the Gulf War.
- Iraq is virtually certain to try to exploit civilian casualties and collateral damage as a political and media weapon, and mix this with the use of deception and decoys. Saddam Hussein's regime will attempt to fight a political battle to the last.

- Iraq might try to use CBRN weapons to preempt a US build-up, launch on warning (LOW), or launch under attack (LUA) against key US and coalition bases. He might try to use selective escalation to using remaining missiles and/or CBRN weapons to try to involve Israel in the war risks escalating the physical damage to Iraq, and make maximum use of the backlash from the Second Intifada. Saddam Hussein seems to have put his missiles and CBRN forces in the hands of loyalists who might well execute a LOW, LUA, and/or desperate retaliatory option. The problem with a desperate retaliatory option is that Saddam must realize that waiting until the regime is collapsing, and then conducting CBRN operations against Arab states, or conducting covert CBRN strikes against the US when the regime is already in extremis, is far more likely to increase the severity of coalition action. He must also realize that major, highly lethal, Iraqi CBRN strikes on Israeli population centers are likely to trigger a major nuclear war.

The Key Military Issue is the Cost to the US of Winning

Anyone who looks seriously at this list of independent variables will quickly see that it is impossible to predict whether and how the US will use decisive force, the Iraqi response to a US-led coalition, the nature of a US-led coalition, how long Iraq can endure, and what strategy Iraq will actually pursue if it does use its CBRN weapons.

What does seem likely, however, is that it would take a major US miscalculation about the size of the forces needed to defeat Iraq and/or a poorly structured and over-constrained US operation, to allow Iraq to ride out the US-led attack through even the best combination of urban and redoubt warfare. Furthermore, most forms of extreme Iraq escalation can make things worse for both the attacker and defender, but will probably end in hurting Iraq more than the attacker.

The Problem of Conflict Termination and Nation Building

It seems doubtful that Saddam Hussein and his supporters could take to the countryside and mount any kind of major insurgent or guerrilla operation over time. Like the Taliban, they simply do not seem popular enough to survive a systematic defeat of their conventional warfighting capability. Much of the mid to long-term success of any US-led operation will, however, depend on the ability to occupy the country with friendly forces, provide suitable peace keeping forces, provide immediate repairs to critical infrastructure, and institute a development and economic recovery program to aid the Iraqi people.

In fact, a clear nation building plan will be critical to obtaining the support of the Iraqi people during the war, the support of Arab and other allies, reassuring Iran, and minimizing the political costs of inevitable civilian casualties and collateral damage. It should also be clear from experience in the Balkans and Afghanistan that nation building cannot be done on the cheap and without a long-term commitment. This will be particularly true of a country that has spent nearly two decades either at war or under UN sanctions, and which faces massive debt and reparations payments.

Replacing Saddam Hussein's regime with a more discrete version of the same thing is not victory in any meaningful sense, and may well simply leave Iraq to founder under a new military leader, and one committed to going on with proliferation and rebuilding Iraq's military strength.

It would also do much to discredit US military success, just as Saddam Hussein's survival after the Gulf War deprived that victory of much of its meaning. The world will also have little reason to trust and admire a US that defeats a dictator, and then abandons Iraq without creating a stable political and social structure, rule of law and human rights, basis for ethnic and sectarian cooperation, and economic development.

Unfortunately, the US has shown in the past that it can execute military operations without any clear plan for conflict termination and nation building. The American military culture seems to feel its responsibility ends with strategy, and that grand strategy is the province of politicians and God. The American political culture – whether led by Bush or Clinton -- seeks to avoid realistic planning for the true scale of the problems, costs, and timelines involved, and prefers to rely on rhetoric, good intentions, and hope. A clear nation-building plan backed with the military forces necessary to implement it, and strong political and economic incentives to the Iraqi people, is far more likely to lead to rapid US success. So is a realistic plan that balances the sensitivities of Iraqi factions and ethnic groups, and that considers the strategic interests of Turkey, the Arab states around Iraq, and Iran.

The US also needs to avoid anything approaching a “mandate” or a Weimar solution. It should be clear that the US intends to leave as soon as it has met the needs of the Iraqi people, and has brought as many neighboring states as possible into the peacekeeping and reconstruction effort. It should rely on Arab states and forces wherever possible in those cases where Iraqi forces cannot do the job. It should be prepared to immediately help reorganize and retrain Iraqi police and security forces.

Economic integrity is equally critical. The US should make it clear it will not exploit any aspect of its actions to win Iraqi oil and other contracts, and support open and competitive international bidding. It should be prepared to forgive all remaining debt and reparations owed by Iraq, and use ruthless diplomatic pressure to persuade other nations to follow this example when they lack the wisdom to do so voluntarily. It must be made clear to Kuwait and Saudi Arabia that this is one contribution to any overthrow of Saddam Hussein that they must make. Only Iraqis can remake Iraq, but the international community can both help and avoid repeating past mistakes.

Iraq has many well-educated and competent administrators in spite of Saddam Hussein's regime, and a strong initial US military effort can suppress warlordism and help create a fair balance of ethnic and sectarian interests. The US cannot, however, rely on “spontaneous democracy to solve its problems or a simplistic form of “democratization.” Iraq cannot create a stable set of political parties and factions without time, and electing a strong man or some largely self-appointed leader quickly after Saddam's exit is not an answer. In fact, “democratization” alone begs some of the most fundamental needs of the Iraqi people. It does not protect human rights or institute a rule of law. It does not protect property and commercial operations and encourage honest outside investment. “Democratization” does not imply the equivalent of a Marshal Plan or economic reform. The US and the world may still have to discover what nation building really should be, and the best techniques to make it work, but simple-minded slogans clearly are not the answer.

Blundering into grand strategy is not a plan. At best, it is victory ending in accident, and the human costs can be all too real. Military adventures that kill US troops and local allies and end in frustration are even worse, and civilian casualties and collateral damage have a moral price tag. Here, it is worthwhile to remember another quotation from the classical world, and this time by Pliny the Elder: “Small boys throw stones at frogs in jest. But, the frogs do not die in jest. The frogs die in earnest.”

Iraqi vs. Neighboring Forces in 2002 - Part One

| | <u>Iran</u> | <u>Iraq</u> | <u>Bahrain</u> | <u>Kuwait</u> | Saudi | <u>Turkey</u> <u>Arabia*</u> | <u>Jordan</u> | <u>Syria</u> |
|-----------------------------------|-------------|-------------|----------------|---------------|---------|---------------------------------|---------------|---------------|
| Manpower | | | | | | | | |
| Total Active | 513,000 | 424,000 | 11,000 | 15,500 | 201,500 | 515,100 | 100,240 | 321,000 |
| Regular | 325,000 | 375,000 | 11,000 | 15,500 | 105,500 | 515,100 | 100,240 | 321,000 |
| National Guard & Other | 125,000 | 0 | 0 | 0 | 75,000 | 0 | 0 | 0 |
| Reserve | 350,000 | 650,000 | 0 | 23,700 | 20,000 | 378,700 | 35,000 | 354,000 |
| Paramilitary | 40,000 | 42,000+ | 10,160 | 5,000 | 15,500+ | 152,200 | 10,000 | 108,000 |
| Army and Guard | | | | | | | | |
| Manpower | 450,000* | 375,000 | 8,500 | 11,000 | 150,000 | 402,000 | 84,700 | 215,000 |
| Regular Army Manpower | 325,000 | 375,000 | 8,500 | 11,000 | 75,000 | 402,000 | 84,700 | 215,000 |
| Reserve | 350,000 | 650,000 | 0 | 0 | 20,000 | 258,700 | 30,000 | 280,000 |
| Total Main Battle Tanks*** | | | | | | | | |
| Total Main Battle Tanks | 1,565 | 2,200 | 106 | 385 | 1,055 | 4,205 | 1,058 | 3,500 (1,200) |
| Active Main Battle Tanks | 1,565 | 1,900 | 106 | 293 | 710 | 2,995 | 1,030 | 3,200 |
| Active AIFV/Recce, Lt. Tanks | 865 | 1,300 | 71 | 355 | 1,270+ | 3,600 | 85 | 3,285 |
| Total APCs | 590 | 2,400 | 235 | 151 | 3,440 | 3,643 | 1,130 | 1,600 |
| Active APCs | 550 | 1,800 | 205 | 111 | 2,630 | 3,480 | 980 | 1,200 |
| ATGM Launchers | 75 | 100+ | 15 | 118 | 480+ | 943 | 640 | 6,050 |
| Self Propelled Artillery | | | | | | | | |
| Self Propelled Artillery | 310 | 150 | 62 | 68 (18) | 200 | 668 | 418 | 450 |
| Towed Artillery | 2,085 | 1,900 | 22 | 0 | 238(58) | 679 | 113 | 1,630 |
| MRLs | 889+ | 200 | 9 | 27 | 60 | 84 | 0 | 480 |
| Mortars | 5,000 | 2,000+ | 21 | 78 | 400 | 2,021 | 700 | 658 |
| SSM Launchers | 51 | 56 | 0 | 0 | 10 | 0 | 0 | 72 |
| Light SAM Launchers | | | | | | | | |
| Light SAM Launchers | ? | 1,100 | 78 | 0 | 650 | 897 | 944 | 4,055 |
| AA Guns | 1,700 | 6,000 | 27 | 0 | 10 | 1,664 | 416 | 2,060 |
| Air Force Manpower | | | | | | | | |
| Air Force Manpower | 30,000 | 30,000 | 1,500 | 2,500 | 20,000 | 60,100 | 15,000 | 40,000 |
| Air Defense Manpower | 15,000 | 17,000 | 0 | 0 | 16,000 | 0 | 0 | 60,000 |
| Total Combat Aircraft | | | | | | | | |
| Total Combat Aircraft | 283 | 316 | 34 | 82 | 348 | 505 | 101 | 589 |
| Bombers | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fighter/Attack | 163+ | 130 | 12 | 40 | 100 | - | 70 | 154 |
| Fighter/Interceptor | 74+ | 180 | 22 | 14 | 181 | - | 31 | 310 |
| Recce/FGA Recce | 6 | 5 | 0 | 0 | 10 | 59 | 0 | 14 |
| AEW C4I/BM | 1 | 0 | 0 | 0 | 5 | 7 | 0 | 0 |
| MR/MPA** | 5 | 0 | 0 | 0 | 0 | - | 0 | 0 |
| OCU/COIN/CCT | 0 | 0 | 0 | 28 | 14 | - | 0 | 0 |
| Other Combat Trainers | 35 | 157 | 0 | 0 | 50 | - | 0 | 111 |
| Transport Aircraft**** | | | | | | | | |
| Transport Aircraft**** | 68 | 12 | 3 | 4 | 61 | 80 | | 25 |
| Tanker Aircraft | 4 | 2 | 0 | 0 | 16 | 7 | 0 | 0 |
| Total Helicopters | | | | | | | | |
| Total Helicopters | 628 | 375 | 47 | 28 | 137 | - | 73 | 197 |
| Armed Helicopters**** | 104 | 100 | 40 | 16 | 21 | 37 | 20 | 87 |
| Other Helicopters**** | 524 | 275 | 7 | 12 | 116 | - | 53 | 110 |
| Major SAM Launchers | | | | | | | | |
| Major SAM Launchers | 250+ | 400 | 15 | 84 | 106 | 92 | 80 | 648 |
| Light SAM Launchers | ? | 1,100 | - | 60 | 309 | 86 | - | 60 |
| AA Guns | - | 6,000 | - | 60 | 340 | - | - | 4,000 |

Iraqi vs. Neighboring Forces in 2002 - Part One

| | <u>Iran</u> | <u>Iraq</u> | <u>Bahrain</u> | <u>Kuwait</u> | <u>Saudi Arabia*</u> | <u>Turkey</u> | <u>Jordan</u> | <u>Syria</u> |
|------------------------------|-------------|-------------|----------------|---------------|----------------------|---------------|---------------|--------------|
| Total Naval Manpower | 38,000* | 2,000 | 1,000 | 2,000 | 15,500 | 53,000 | 540 | 6,000 |
| Regular Navy | 15,400 | 2,000 | 1,000 | 2,000 | 12,500 | 49,900 | 540 | 6,000 |
| Naval Guards | 20,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marines | 2,600 | - | - | - | 3,000 | 3,100 | 0 | 0 |
| Major Surface Combattants | | | | | | | | |
| Missile | 3 | 0 | 3 | 0 | 8 | 22 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| Patrol Craft | | | | | | | | |
| Missile | 10 | 1 | 6 | 10 | 9 | 21 | 0 | 10 |
| (Revolutionary Guards) | 10 | - | - | - | - | - | - | - |
| Other | 42 | 5 | 4 | 0 | 17 | 28 | 3 | 8 |
| Revolutionary Guards (Boats) | 40 | - | - | - | - | - | - | - |
| Submarines | 3 | 0 | 0 | 0 | 0 | 13 | 0 | 0 |
| Mine Vessels | 7 | 3 | 0 | 0 | 7 | 24 | 0 | 5 |
| Amphibious Ships | 9 | 0 | 0 | 0 | 0 | 8 | 0 | 3 |
| Landing Craft | 9 | - | 4 | 2 | 8 | 59 | 0 | 4 |
| Support Ships | 22 | 2 | 5 | 4 | 7 | 27 | 0 | 4 |
| Naval Air | 2,000 | - | - | - | - | - | 0 | 0 |
| Naval Aircraft | | | | | | | | |
| Fixed Wing Combat | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MR/MPA | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Armed Helicopters | 19 | 0 | 0 | 0 | 21 | 16 | 0 | 16 |
| SAR Helicopters | - | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Mine Warfare Helicopters | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Helicopters | 19 | - | 2 | - | 6 | 7 | 0 | - |

Note: Equipment in storage shown in the higher figure in parenthesis or in range. Air Force totals include all helicopters, including army operated weapons, and all heavy surface-to-air missile launchers.

* Iranian total includes roughly 100,000 Revolutionary Guard actives in land forces and 20,000 in naval forces .

** Saudi Totals for reserve include National Guard Tribal Levies. The total for land forces includes active National Guard equipment. These additions total 450 AIFVs, 730(1,540) APCs, and 70 towed artillery weapons.

*** Total tanks include tanks in storage or conversion.

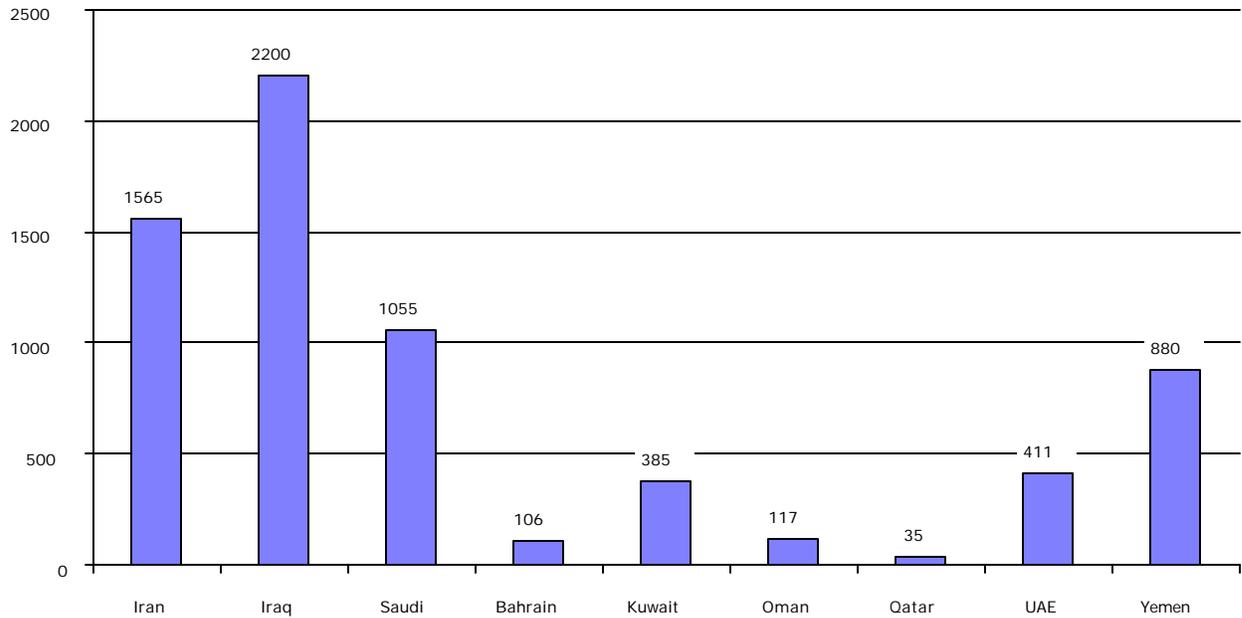
**** Includes navy, army, national guard, and royal flights, but not paramilitary.

***** Includes in Air Defense Command

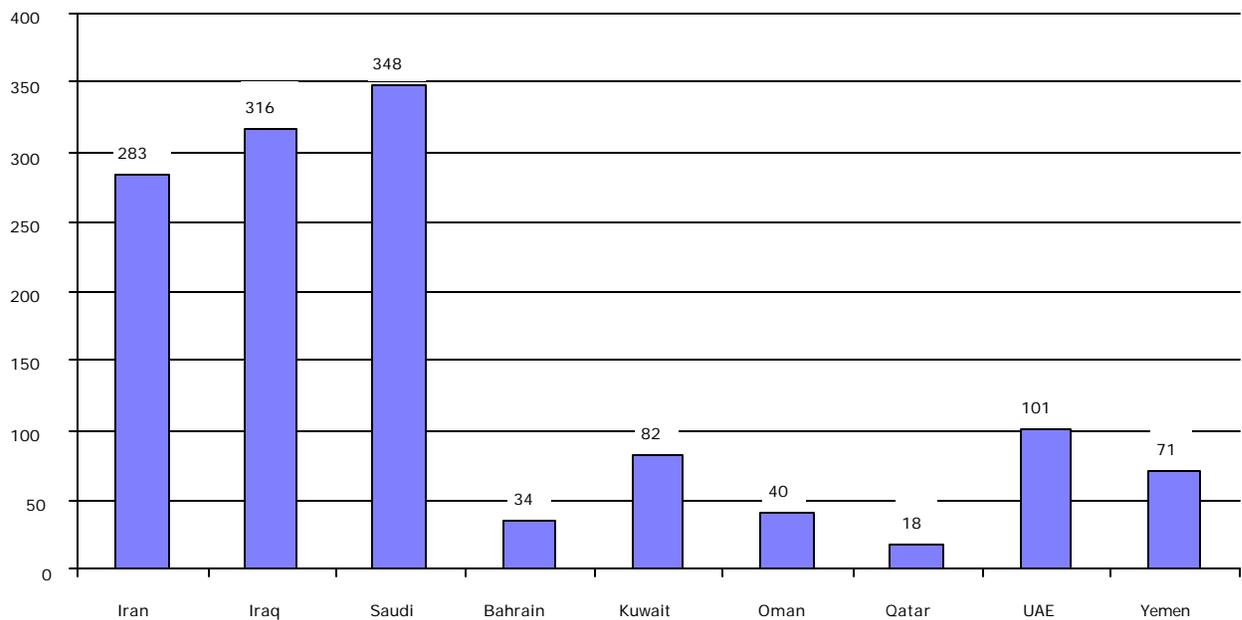
Source: Adapted by Anthony H. Cordesman from interviews, International Institute for Strategic Studies, Military Balance (IISS, London); Jane's Sentinel, Periscope; and Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv)

Major Measures of Combat Equipment Strength - 2002

Total Main Battle Tanks in Inventory



Total Fixed Wing Combat Aircraft



Source: Estimated by Anthony H. Cordesman using data from the IISS Military Balance, the on-line edition of Jane's Sentinel Security Assessment, and the on-line edition of Periscope.

Gulf Arms Buys by Supplier: 1987-2000

(New arms agreements in current US \$millions)

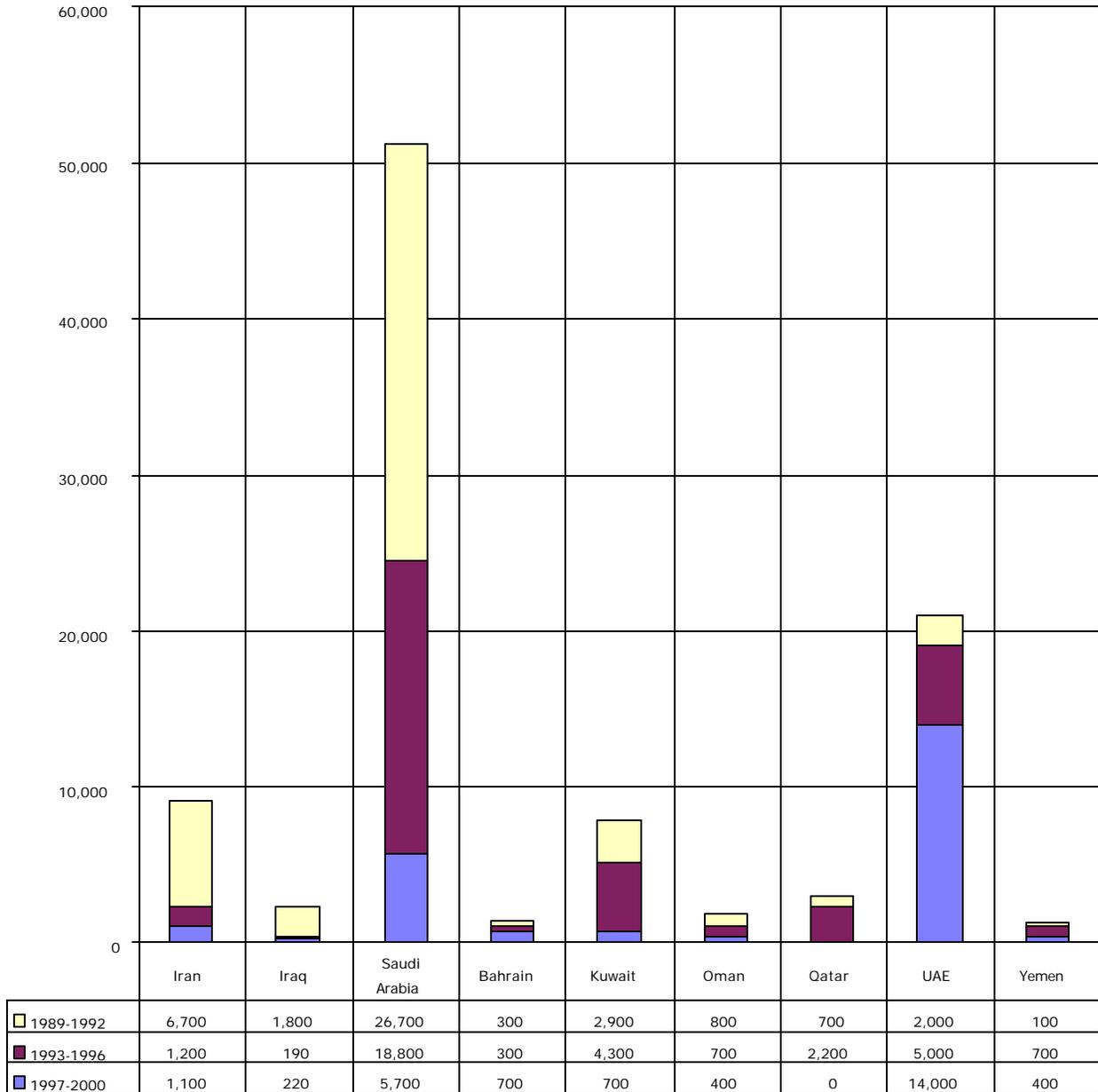
| <u>Buyer Country</u> | <u>Supplier Country</u> | | | | | | <u>Total</u> |
|----------------------|-------------------------|---------------|--------------|----------------------------|-----------------------|-------------------|--------------|
| | <u>US</u> | <u>Russia</u> | <u>China</u> | <u>Major West European</u> | <u>Other European</u> | <u>All Others</u> | |
| Iran | | | | | | | |
| 1987-90 | 0 | 3,500 | 2,300 | 200 | 1,200 | 1,600 | 8,800 |
| 1991-94 | 0 | 200 | 200 | 100 | 100 | 600 | 1,200 |
| 1995-98 | 0 | 200 | 800 | 0 | 300 | 100 | 1,400 |
| 1996-99 | 0 | 200 | 800 | 0 | 100 | 0 | 1,100 |
| 1997-2000 | 0 | 300 | 600 | 100 | 100 | 200 | 1,300 |
| Iraq | | | | | | | |
| 1987-90 | 0 | 300 | 700 | 500 | 500 | 1,000 | 3,000 |
| 1991-94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1995-98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996-99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997-2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bahrain | | | | | | | |
| 1987-90 | 300 | 0 | 0 | 0 | 0 | 0 | 300 |
| 1991-94 | 200 | 0 | 0 | 0 | 0 | 0 | 200 |
| 1995-98 | 500 | 0 | 0 | 0 | 0 | 0 | 500 |
| 1996-99 | 500 | 0 | 0 | 0 | 0 | 0 | 500 |
| 1997-2000 | 700 | 0 | 0 | 0 | 0 | 0 | 700 |
| Kuwait | | | | | | | |
| 1987-90 | 2,500 | 200 | 0 | 200 | 200 | 200 | 3,300 |
| 1991-94 | 3,500 | 800 | 0 | 1,800 | 0 | 100 | 6,200 |
| 1995-98 | 900 | 0 | 200 | 700 | 100 | 0 | 1,900 |
| 1996-99 | 800 | 0 | 200 | 100 | 0 | 0 | 1,100 |
| 1997-2000 | 500 | 0 | 200 | 0 | 0 | 0 | 700 |
| Oman | | | | | | | |
| 1987-90 | 100 | 0 | 0 | 600 | 0 | 0 | 700 |
| 1991-94 | 0 | 0 | 0 | 500 | 0 | 100 | 600 |
| 1995-98 | 0 | 0 | 0 | 300 | 100 | 100 | 500 |
| 1996-99 | 0 | 0 | 0 | 300 | 100 | 0 | 400 |
| 1997-2000 | 0 | 0 | 0 | 300 | 100 | 0 | 400 |
| Qatar | | | | | | | |
| 1987-90 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1991-94 | 0 | 0 | 0 | 2,000 | 0 | 0 | 2,000 |
| 1995-98 | 0 | 0 | 0 | 900 | 0 | 0 | 900 |
| 1996-99 | 0 | 0 | 0 | 800 | 0 | 0 | 800 |
| 1997-2000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Saudi Arabia | | | | | | | |
| 1987-90 | 18,800 | 200 | 300 | 23,000 | 2,300 | 200 | 44,800 |
| 1991-94 | 15,600 | 0 | 0 | 6,600 | 100 | 0 | 22,300 |
| 1995-98 | 5,100 | 0 | 0 | 1,700 | 800 | 300 | 7,900 |
| 1996-99 | 5,500 | 0 | 0 | 400 | 900 | 300 | 7,100 |
| 1997-2000 | 4,300 | 0 | 0 | 0 | 1,100 | 300 | 5,700 |
| UAE | | | | | | | |
| 1987-90 | 300 | 0 | 0 | 300 | 0 | 400 | 1,000 |
| 1991-94 | 300 | 500 | 0 | 3,900 | 100 | 0 | 4,800 |
| 1995-98 | 100 | 400 | 0 | 6,000 | 800 | 100 | 7,400 |
| 1996-99 | 300 | 400 | 0 | 6,000 | 800 | 200 | 7,700 |
| 1997-2000 | 6,800 | 800 | - | 6,000 | 200 | 200 | 14,000 |

0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations Congressional Research Service, various editions.

Total Gulf New Arms Agreements from the Gulf War to 2000

(\$Current US Millions)

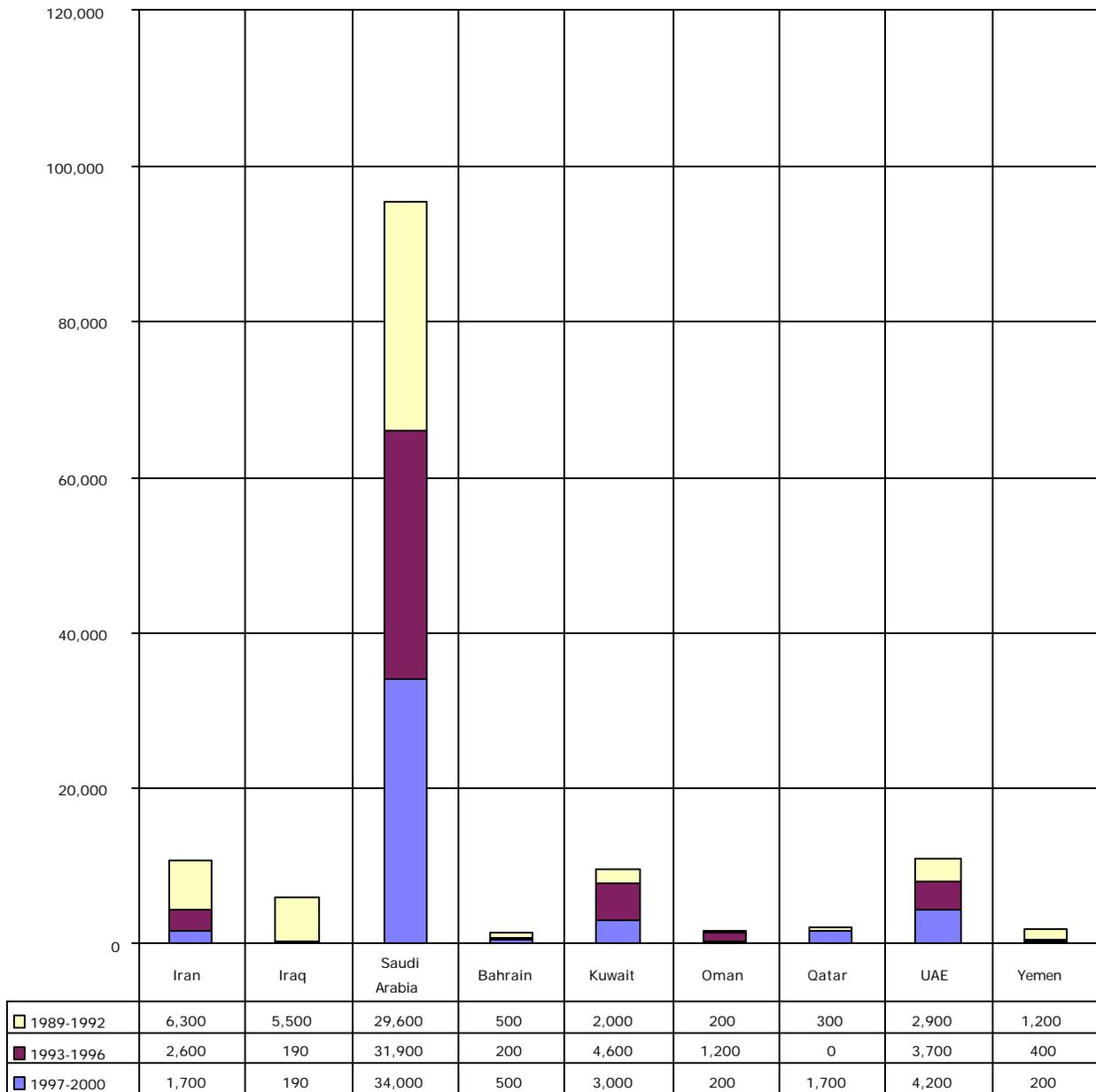


0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Total Gulf New Arms Deliveries from the Gulf War to 2000

(\$Current US Millions)

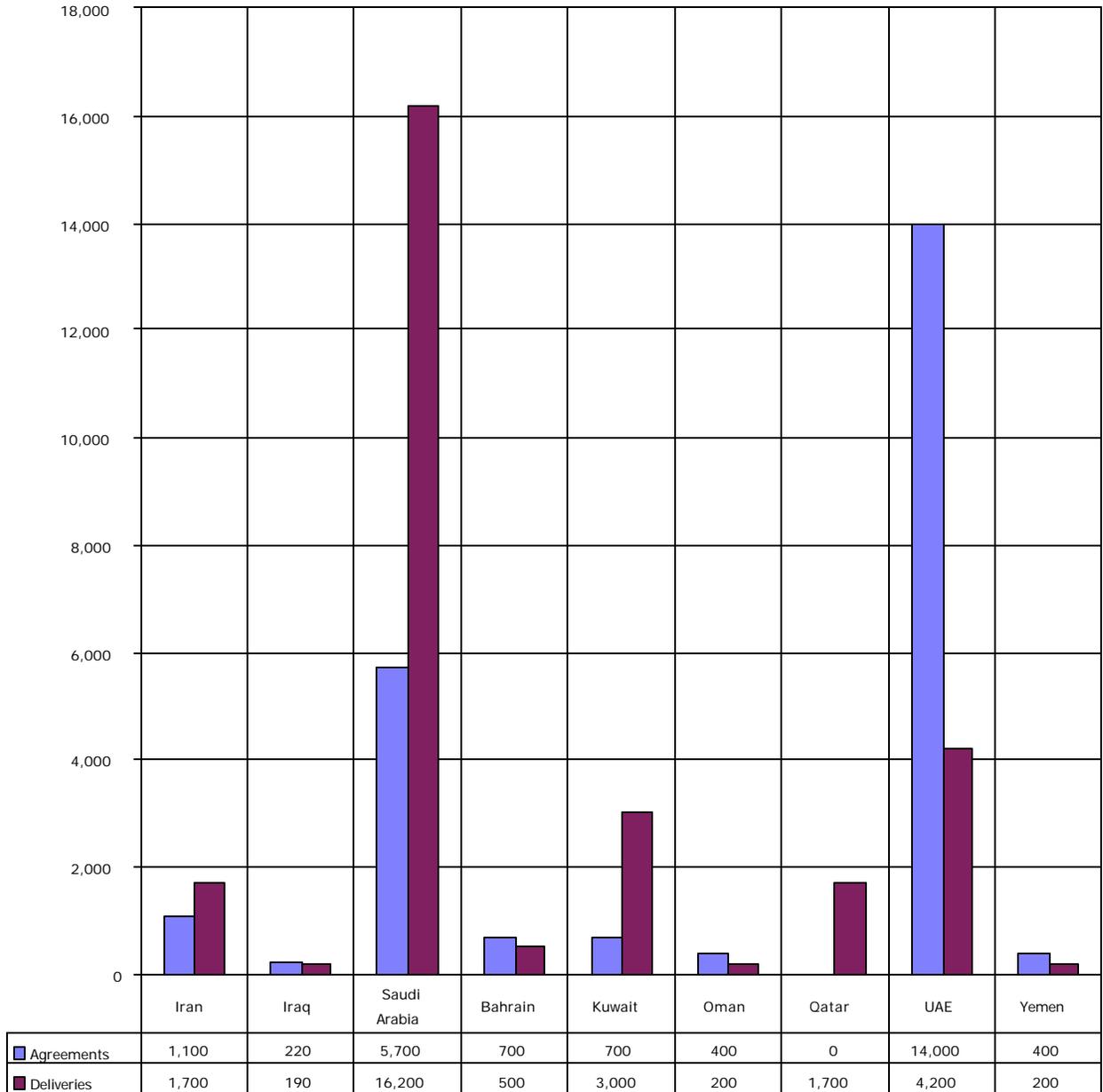


0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Total Gulf New Arms Agreements and Deliveries 1997-2000

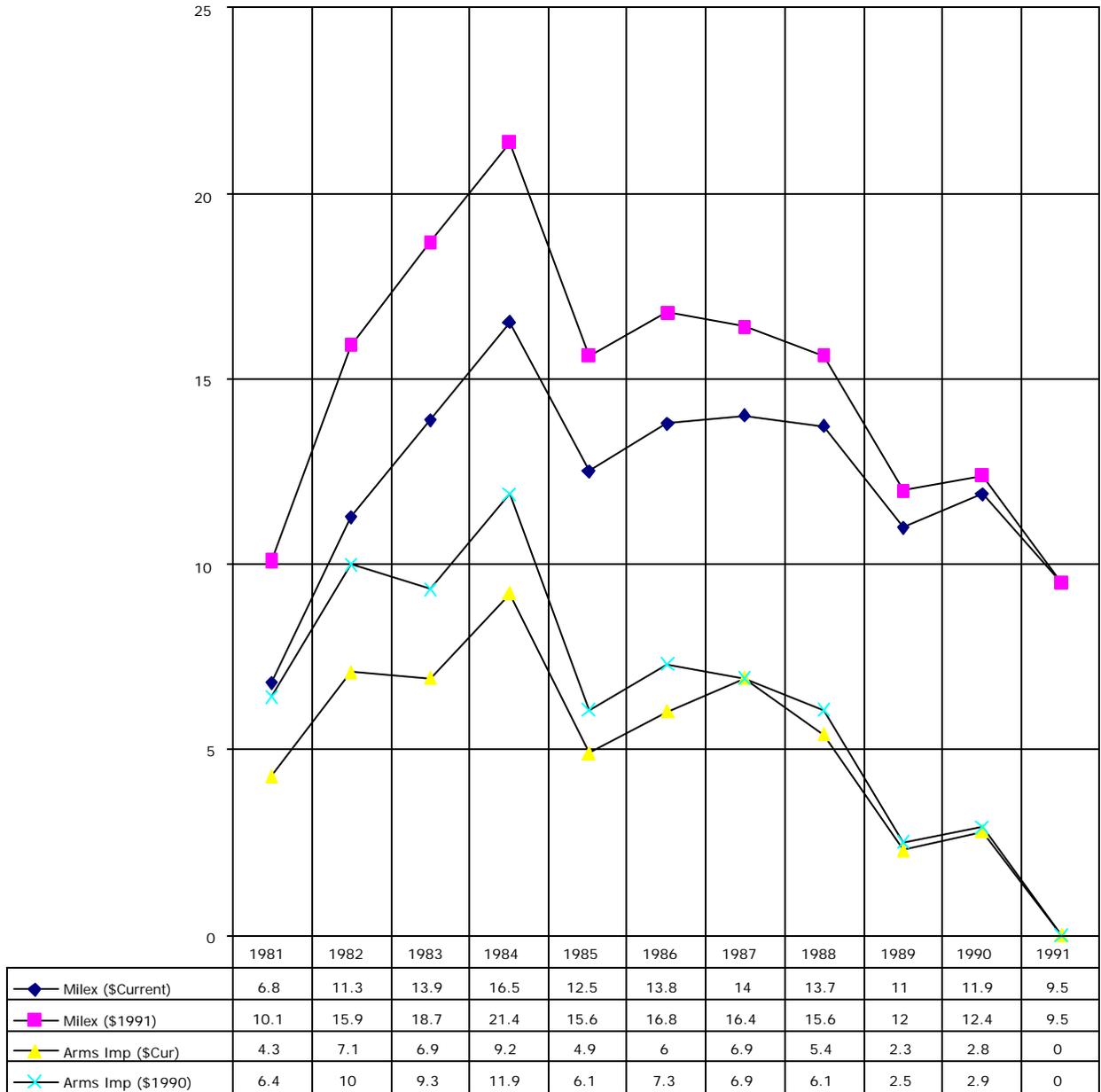
(\$Current US Millions)



0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

Iraq's Massive Military Effort Before the Gulf War (\$US Billions)

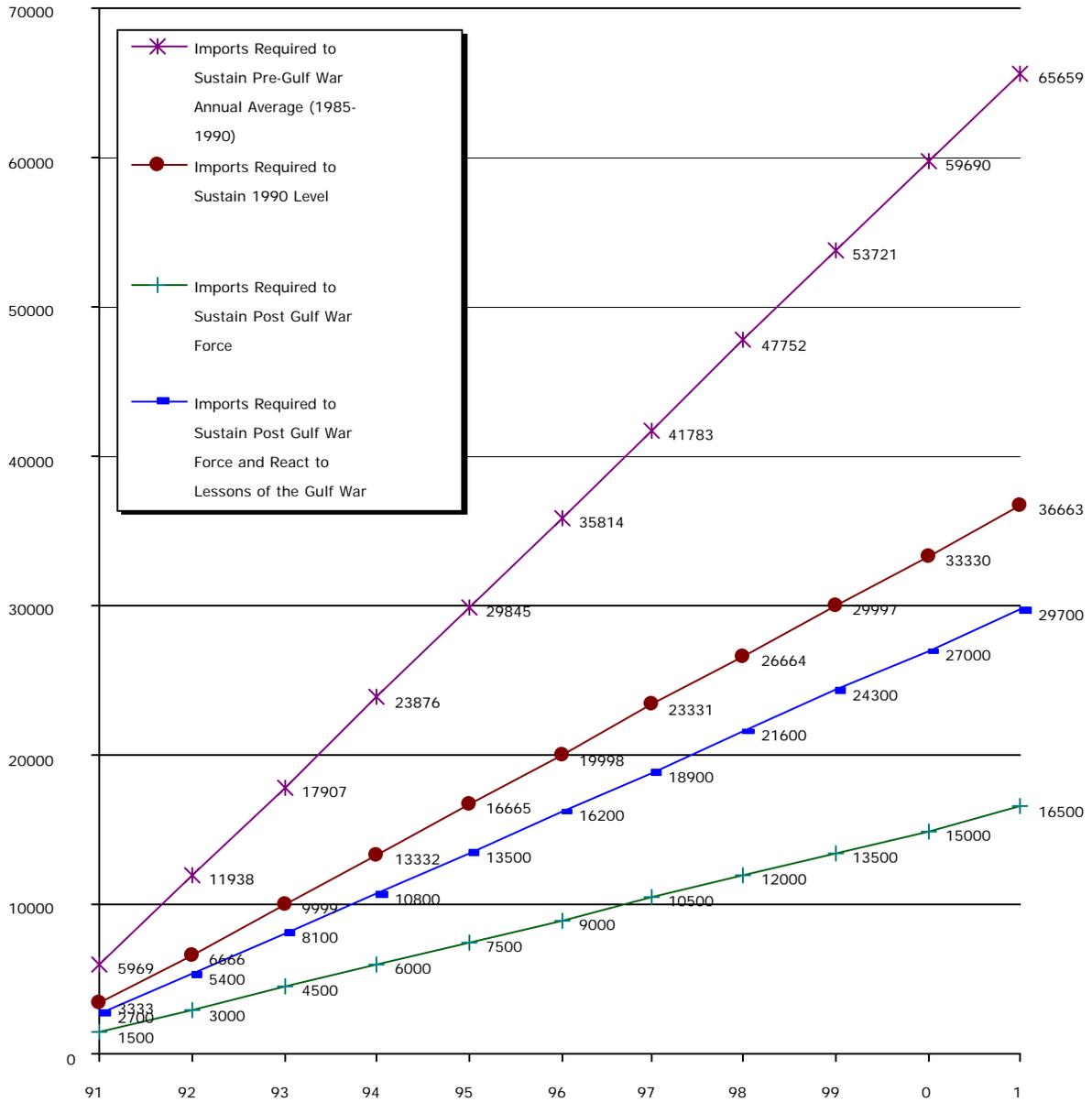


0 = less than \$50 million or nil, and all data rounded to the nearest \$100 million.

Source: Richard F. Grimmett, Conventional Arms Transfers to the Developing Nations, Congressional Research Service, various editions.

The Iraqi Cumulative Arms Import Deficit Enforced by UN Sanctions

(Measured in \$US 01 Constant millions)



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

Iraqi Arms Buys - Overview

- Iraqi purchases matched Saudi purchases during the mid-1980s, but Iraqi deliveries in current US dollars dropped from \$11 billion annually from 1988-1991, to below \$200 million annually from 1992-1995.
- Comparisons of new Iraqi agreements and arms deliveries by supplier country reveal a drastic decline in new agreements before the Gulf War that would have seriously compromised Iraq's import-dependent forces, even without the Gulf War.
 - New agreements with Russia dropped from \$11.8 billion from 1983-1986, to \$4.1 billion from 1987-1990, before dropping to zero after 1991.
 - New agreements with China dropped from \$1.7 billion during the period from 1983-1986 to \$0.6 billion in 1987-1990, before dropping to zero after 1991.
 - New agreements with Eastern Europe dropped from \$4.0 billion in 1983-1986 to \$1.0 billion in 1987-1990, before dropping to zero after 1991.
 - In contrast, new agreements with the major Western European states rose from \$1.0 billion in 1983-1986 to \$2.7 billion in 1987-1990, before dropping to "zero" for everything but minor deliveries of smuggled parts and equipment after 1991. This pattern reflects Iraq's growing interest in advanced military technology before the cutoff of arms imports.
- In spite of various claims, Iraq's domestic production capability can only play a minor role in allowing Iraq to sustain its modern weapons and maintain its ability to use advanced military technology. Iraq remains an import dependent country.
 - Iraq's past pattern of arms imports makes it highly dependent on access to a wide range of suppliers -- particularly Western Europe and Russia. Even if one nation should resume its role as a supplier, Iraq could not rebuild its military machine without broad access to it and other similar nations, and would be forced to convert a substantial amount of its order of battle to whatever the potential supplier(s) were willing to sell.
 - In spite of some smuggling, Iraq has had negligible export earnings since 1990, and faces significant long-term limits on its ability to import arms even when sanctions are lifted.
 - Iraq will encounter severe problems after UN sanctions are lifted because of the inability of the FSU to provide efficient deliveries of spares and cost-effective upgrade and modernization packages.
 - No accurate data are available on Iraqi military spending and arms imports since 1991, but estimates of trends in constant dollars, using adjusted US government data, strongly indicate that Iraq would need to spend sums approaching \$20 billion to recapitalize its force structure.
 - Major modernization efforts to counter US standards of capability could add \$10 billion each to key modernization efforts, like land-based air defense, air defense, air and missile strike capabilities, armored modernization, modernization of other land weapons, and reconstitution of the Iraqi Navy. Modernization to match Saudi levels of capability would cost about half this amount.

Iraqi Dependence on Decaying, Obsolete, or Obsolescent Major Weapons

Land Forces

- 600-700 M-48s, M-60s, AMX-30s, Centurions, and Chieftains captured from Iran or which it obtained in small numbers from other countries.
- 1,000 T-54, T-55, T-77 and Chinese T-59 and T-69 tanks
- 200 T-62s.
- 1,500-2,100 (BTR-50, BTR-60, BTR-152, OT-62, OT-64, etc
- 1,600 BDRM-2, EE-3, EE-9, AML-60, AML-90
- 800-1,200 towed artillery weapons (105 mm, 122 mm, 130 mm, and 155 mm).
- Unknown number of AS-11, AS-1, AT-1, crew-portable anti-tank-guided missiles.
- More than 1,000 heavy, low-quality anti-aircraft guns.
- Over 1,500 SA-7 and other low-quality surface-to-air guided missile launchers & fire units.
- 20 PAH-1 (Bo-105); attack helicopters with AS-11 and AS-12, 30 Mi-24s and Mi-25s with AT-2 missiles, SA-342s with AS-12s, Allouettes with AS-11s and AS-12s.
- 100-180 worn or obsolete transport helicopters.

Air Force

- 6-7 HD-6 (BD-6), 1-2 Tu-16, and 6 Tu-22 bombers.
- 100 J-6, MiG-23BN, MiG-27, Su-7 and Su-20.
- 140 J-7, MiG-21, MiG-25 air defense fighters.
- MiG-21 and MiG-25 reconnaissance fighters.
- 15 Hawker Hunters.
- Il-76 Adnan AEW aircraft.
- AA-6, AA-7, Matra 530 air-to-air missiles.
- AS-11, AS-12, AS-6, AS-14; air-to-surface missiles.
- 25 PC-7, 30 PC-9, 40 L-29 trainers.
- An-2, An-12, and Il-76 transport aircraft.

Air Defense

- 20-30 operational SA-2 batteries with 160 launch units.
- 25-50 SA-3 batteries with 140 launch units.
- 36-55 SA-6 batteries with over 100 fire units.
- 6,500 SA-7s.
- 400 SA-9s.
- 192 SA-13s

Navy

- *Ibn Khaldun*.
- Osa-class missile boat.
- 13 light combat vessels.
- 5-8 landing craft.
- *Agnadeen*.
- 1 Yugoslav Spasilac-class transport.
- Polnocny-class LST.

Source: Estimate made by Anthony H. Cordesman based discussions with US experts.

The Problem of Iraqi Military Production

- Iraq developed significant ammunition, small and light arms, and gun barrel production facilities before the Gulf War, and many survive and function. However, Iraq has focused most resources on weapons of mass destruction.
- Iraq left even high tech service (e.g. French and Russian aircraft) to foreign technical support teams. It did not attempt to develop major in-house capabilities.
- Pre-1991, production was heavily prototype-oriented and largely prestige-oriented in nature.
- Iraq did import T-72 kits, in theory, as a transition to production facilities. However, it is far from clear that Iraq has the industrial base for such manufactures.
- Iraqi modifications sometimes succeeded, but many failed and had an “impress the maximum leader character.” E.g. T-72 upgrades.
- Historically, assembly of major weapons does not lead to technology transfer or effective reverse engineering capability without extensive foreign support. The net impact is to create over-specialized facilities and waste resources.
- No developing state, including India and China, has yet demonstrated that it can successfully mass manufacture an advanced fighter plane or tank, even on a turn-key basis.
- Few nations have made useful major equipment upgrades for armor and aircraft. Jordan and South Korea, Turkey are among the nations which have succeeded in doing this. Egypt, India, and Pakistan are more typical examples.
- Iraq has effectively been cut off from all major imports of parts and specialized equipment since the early 1990s, although dual use items, civilian electronics and sensors, and computer gear are not effectively controlled.
- Black market imports, substitution, and local manufactures can only provide an erratic and inefficient substitute for large-scale resources.
- There are some indications that Iraq is giving priority to importing equipment for weapons of mass destruction.

¹ These Iraqi force estimates are based largely upon Anthony H. Cordesman, Iraq and the War of Sanctions, Westport, Praeger, 1999; the IISS, Military Balance, 2001-2002, and material in the Internet edition of Jane's Sentinel series, accessed in June 2002

¹ Estimates provided by USCENTCOM in June, 1996 and 1997, plus interviews.

³ USCENTCOM briefing by "senior military official..

⁴ Estimate first provided by USCENTCOM in June, 1996 plus interviews.

⁵ London Daily Telegraph, July 19, 2002, p. 1.

¹ Estimates provided by USCENTCOM in June, 1996 and 1997, plus interviews.

⁷ USCENTCOM briefing by "senior military official..

⁸ Estimate first provided by USCENTCOM in June, 1996 plus interviews.

⁹ Based on interviews.

¹⁰ USCENTCOM briefing by "senior military official".

¹¹ Jane's Sentinel Security Assessment, Iraqi Army, on-line edition, accessed May 7, 2002.

¹² Amatzia Baram, "The Iraqi Armed Forces and Security Apparatus," Conflict Security Development, Centre for Defense Studies, King's College London, 2001, pp. 113-123.

¹³ Amatzia Baram, "The Iraqi Armed Forces and Security Apparatus," Conflict Security Development, Centre for Defense Studies, King's College London, 2001, pp. 113-123.

¹⁴ Based on interviews.

¹⁵ USCENTCOM briefing by "senior military official".

¹⁶ Jane's Sentinel Security Assessment, Iraqi Army, on-line edition, accessed May 7, 2002.

¹⁷ Jane's Sentinel Security Assessment, Iraqi Air Force, on-line edition, accessed May 7, 2002

¹⁸ Many different lists exist of the names of such bases. Jane's lists Al Amarah, Al Asad, Al Bakr, Al Basrah - West Maqal, Al Khalid, Al Kut, Al Qayyarah, Al Rashid, Al Taqaddum, Al Walid, Artawi, As Salman, As Samara, As Zubair, Baghdad-Muthenna, Balada, Bashur, Erbil, Jalibah, Karbala, Radif al Khafi, Kirkuk, Mosul, Mudaysis, Nejef, Qal'at Sikar, Qurna, Rumaylah, Safwan, Shibah, Shyaka Mayhar, Sulyamaniya, Tal Afar, Tallil-As Nasiryah, Tammuz, Tikrit, Ubdaydah bin al Jarrah, and Wadi Al Khirr. Many of the bases on this list are of limited size or are largely dispersal facilities. See Jane's Sentinel: The Gulf States, "Iraq," London, Jane's Publishing, various editions.

¹⁹ Ze'ev Schiff, "Syria Buys Arms for Iraq in Eastern Europe," Ha'aretz, July 15, 2002, p. 1.

²⁰ New York Times, July 5, 2002, p. A6, July 7, 2002, p. A4.

²¹ For a good discussion of these issues, see John F. Burns, "Kurds, Secure in North Iraq, Are Cool to a US Offensive," New York Times, July 8, 2002, pp. A-1 and A-7.

²² These estimates are based upon the IISS, Military Balance, 2001-2002.

²³ Washington Times, July 10, 2002, p. 15.

²⁴ Interviews in the region in 2000 and 2001, and Los Angeles Times, July 16, 2002, p. 1.

²⁵ These Iranian force estimates are based largely upon Anthony H. Cordesman, Iran's Military Forces in Transition, Westport, Praeger, 1999; the IISS, Military Balance, 2001-2002, and material in the Internet edition of Jane's Sentinel series, accessed in June 2002.

²⁶ USCENTCOM briefing by "senior military official."

²⁷ An analysis by Charles Duelfer indicates that the count of 817 missile assemblies certified by UNSCOM includes 8 used in training before the Iran-Iraq War, 516 used during the Iran-Iraq War, 69 used in testing, 93 used in the Gulf War, 48 destroyed by UNSCOM, and 83 that Iraq asserted it had unilaterally destroyed. The count of those used in testing is particularly suspect.

²⁸ CIA, August 10, 2000, Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 1999, internet edition.

²⁹ According to some reports, General Tommy Franks, the commander of USCENTCOM, has made such preemptive strikes part of his contingency planning. See John Henderson, "In Iraq, US Faces New Dynamics," Los Angeles Times, July 6, 2001, p. 1.

³⁰ For a discussion of some of these issues, see Christopher J. Bowie, "Destroying Mobile Ground Targets in An Anti-Access Environment," Analysis Center Papers, Northrup Grumman, December 2001; and Vernon Loeb, "US Gains in Attacking Mobile Arms," Washington Post, July 5, 2002, p. A-14.

³¹ Press reports that SAS forces could locate and destroy Iraqi BW facilities seem little more than speculation. (London Times, July 12, 2002, p. 1.)

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- ³² These figures as taken from the on-line edition of the Department of Defense's Defense Almanac, <http://www.defenselink.mil/pubs/almanac/>, accessed as of July 21, 2002.
- ³³ London Daily Telegraph, July 19, 2002, p. 1.
- ³⁴ These estimates are based largely on data in the IISS, Military Balance, 2001-2002.
- ³⁵ Dallas Morning News, July 18, 2002; Washington Post, July 18, 2002, p. 26; Los Angeles Times, July 17, 2002; Washington Post, July 17, 2002, p. 18; Wall Street Journal, July 19, 2002.
- ³⁶ US Department of Defense, Public Affairs Office, June 27, 2002.
- ³⁷ USA Today first reported this on February 28, 2002; the Washington Post reported it on June 16, 2002. More uncertain reports that the UK is also using agents in Iraq to incite revolts have been published in the Daily Telegraph (July 12, 2002, p. 1)
- ³⁸ Washington Times, July 17, 2002, p. 11.
- ³⁹ Amatzia Baram, "The Iraqi Armed Forces and Security Apparatus," Conflict Security Development, Centre for Defense Studies, King's College London, 2001, pp. 113-123.
- ⁴⁰ Amatzia Baram, "The Iraqi Armed Forces and Security Apparatus," Conflict Security Development, Centre for Defense Studies, King's College London, 2001, pp. 113-123.
- ⁴¹ Amatzia Baram, "The Iraqi Armed Forces and Security Apparatus," Conflict Security Development, Centre for Defense Studies, King's College London, 2001, pp. 113-123.
- ⁴² London Times, July 15, 2002; New York Times, July 14, 2002, p. 10; Washington Times, July 15, 2002, p. 1; Wall Street Journal, July 15, 2002.
- ⁴³ CIA, World Factbook, 2001, <http://www.odci.gov/cia/publications/factbook/index.html>.
- ⁴⁴ Aerospace Daily, February 20, 2002; General Tommy Franks testimony to the Senate Armed Services on February 5, 2002. <http://www.centcom.mil/news/transcripts/General%20Franks%20Testimony%205Feb02.htm>.
- ⁴⁵ Aerospace Daily, February 20, 2002; General Tommy Franks testimony to the Senate Armed Services on February 5, 2002. <http://www.centcom.mil/news/transcripts/General%20Franks%20Testimony%205Feb02.htm>.
- ⁴⁶ General Tommy Franks testimony to the Senate Armed Services on February 5, 2002. <http://www.centcom.mil/news/transcripts/General%20Franks%20Testimony%205Feb02.htm>; Bryan Bender, Kim Burger, and Andrew Koch, Afghanistan: First Lessons, Jane's Defense Weekly, December 19, 2001, p. 20; New York Times, February 8, 2002, p. A-14, and Philadelphia Inquirer, February 12, 2002, p. 1.
- ⁴⁷ Aerospace Daily, February 20, 2002; General Tommy Franks testimony to the Senate Armed Services on February 5, 2002. <http://www.centcom.mil/news/transcripts/General%20Franks%20Testimony%205Feb02.htm>.
- ⁴⁸ Washington Post, February 16, 2002, p. A-27.
- ⁴⁹ A variation of this option is described in Eric Schmitt, "US Plan for Iraq is Said to Include Attack on Three Sides," New York Times, July 5, 2002, pp. A-1 and A-6. This article led the Department of Defense to launch an official investigation to try to find the person who leaked the US plans referenced in the article. New York Times, July 21, 2002,
- ⁵⁰ London Daily Telegraph, July 12, 2002, p. 1; UPI.com, July 12, 2002; Stratfor.com, July 10, 2002.