

# The Gulf Military Balance

## *Volume I: The Conventional and Asymmetric Dimensions*

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*Request for comments:*

This report is a draft that will be turned into an electronic book. Comments and suggested changes would be greatly appreciated. Please send any comments to Anthony H. Cordesman, Arleigh A. Burke Chair in Strategy, at [acordesman@gmail.com](mailto:acordesman@gmail.com).

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## Executive Summary

The US must plan for the fact that Iran will continue to compete militarily with the US and its regional allies as long as anything like the present Iranian regime remains in power, the Strait of Hormuz remains strategically critical, and Iran seeks to establish itself as a regional power. Barring an unpredictable diplomatic breakthrough, Iran will continue to challenge and undermine the US presence in the Middle East. The US cannot afford to be lax or dismissive in confronting Iran's strategy. To effectively engage Iran, the US must continue to develop the means to counter Iran's evolving assets throughout the region.

This makes an assessment of the trends in the military balance in the Gulf a critical part of US and allied decision making. As this analysis shows, however, the conventional military balance is only one side of the story. Iran's current strategy is to develop a combination of conventional and asymmetric forces that present a wide range of significant challenges to US policy makers, Arab Gulf states, and other allies and regional powers. Iran is linking the steady expansion of its asymmetric forces to new uses of its conventional forces and is building up its missile and nuclear capabilities in part to deter retaliation against its use of asymmetric warfare, and in part to pose a major challenge to US and allied conventional superiority

Iran almost certainly recognizes that US conventional superiority would give the US and its Gulf allies the upper hand in a serious conventional conflict where they could use the full spectrum of their abilities to attack a range of Iranian military targets. The US, however, must work with its Gulf partners and other allies to deter and defend against very different types of conflict and be prepared to face sharp limits on the amount of force it can use.

For example, the threat from Iran's mines and submarines, which could be used in a low-level war of attrition and would present serious problems for the US, is increasing. These weapons systems could inflict losses on US forces or those of US regional allies, damage critical infrastructure, and disrupt or halt Gulf commerce with little or no warning and in ways that would force a more limited US and regional alliance response.

Iran's robust mine warfare capability and the current weaknesses in the countermine operations capability of the US and Arab Gulf navies could pose a serious threat to the security of the Gulf. Virtually any military or commercial vessel is capable of laying mines if it has the physical capacity to carry them. Consequently, the Islamic Revolutionary Guard Corps Navy (IRGCN) and the Iranian navy are capable of seeding the Gulf and Strait of Hormuz with a large number of mines in a relatively short period of time using far more vessels than the US and Gulf navies could track.

If the US is to successfully neutralize this complex mix of threats that can be used in so many different ways and at so many different levels of escalation, it must continuously adapt its forward deployed and power projection forces to handle Iranian efforts to improve its capability to conduct a battle of attrition in the Gulf or near it. The US must be prepared to deal with contingencies like Iran's use of free floating mines, unattributable attacks, and any other form of asymmetric warfare than threatens friendly Gulf states and the flow of world energy exports from the region.

The US is reshaping its force posture in the Gulf to take account of its withdrawal from Iraq and the growth of the Iranian threat, in other ways and is deploying advanced missile defense cruisers to the region with the ability to quickly reinforce these units. The US Navy's weakness in countermine warfare, however, remains a critical area of concern for US military planners and

policy makers and represents a continued Iranian emphasis on improving their asymmetric naval, air, and missile capabilities. . The US Navy is undergoing a period where the previous generation mine warfare systems, such as CH-53/MH-53 helicopters, are aging and future generation systems, such as the Littoral Combat Ship and MH-60S Seahawks are either not ready or are not as capable as previous systems.

At the same time the US must continue to maintain strong forces in the Gulf to contain, deter, and – if necessary – engage Iran’s forces. The US must be able to join with its Arab Gulf allies and decisively win a battle in a period of weeks, in order to keep Gulf petroleum exports flowing and keep the Gulf open to international shipping and exports. . At the same time, the US must work closely with allies like Britain and France, and seek the cooperation of key allies like Turkey. At a more technical level, the US must continue to equip, modernize, and train the forces of its regional allies to confront asymmetric threats.

Heightening tensions between Iran and the US and the Gulf states since 2011 have led to further sales of advanced military equipment such as aircraft and air and missile defense systems. Sales of new systems to Saudi Arabia (F-15SA, UH-60M, and AH-6I) and the UAE (AH-64D) greatly empower these states to deter foreseeable Iranian aggression and launch retaliatory airstrikes against Iranian naval, coastal, and missile targets. Furthermore, the sale of THAAD systems to the UAE provide the Gulf Cooperation Council (GCC) with the capability to retaliate to limited Iranian strikes without American support, lowering the response threshold and increasing the costs to Iran of any hostile action.

But the US must also be fully prepared for the range of other military options Iran is developing. Iran’s ties to Hezbollah, Hamas, Sadrist, and other Shi’ite militias in Iraq, Syria, and Shi’ite minorities in other Gulf states create relationships where it may be able to use state and non-state actors in asymmetric warfare.

Iran has already used some of these assets against Israel to undermine the internal stability and cohesion of US allies in the Middle East (most notably Lebanon and Iraq), to indirectly attack US forces in Iraq, and to help Hamas seize power in the Gaza Strip. Given the strategic importance of these states in the regional balance, the US cannot allow Iran to continue to cultivate and strengthen such threatening movements and create potential proxies. The US must continue to fund, support, and train its regional allies to counter Iran’s proxies within their borders and undercut their popular appeal. Furthermore, the US must work to stem Iranian materiel and financial support to these groups.

At the same time, the US must seek to deter war and limit escalation if some incident or clash occurs. The US must persuade its regional allies, European allies, and other states that it will seek to avoid war, and escalate only as much as necessary if an incident or clash does occur. It cannot win their support if they feel the US is reckless or does not consider their interests. The US must also consider that any clash or even the risk of a clash will have an impact on world prices and the global economy.

Finally, the US must look beyond Iran and at the full range of “wild cards” listed earlier. Iran is scarcely the only threat or risk in the Gulf, and forces in the Gulf are only part of the broader strategic developments that will shape the future balance.

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## ***Introduction***

The most threatening form of US-Iranian competition takes place in the military and security arena. These threats are shaped by the growth of Iranian asymmetric warfare forces and threats to “close the Gulf”; by developments in Iran’s nuclear, missile, and anti-missile systems; and by the actions of groups like Iran’s Al Quds force that carry out paramilitary and terrorist activities in other countries and that support a wide range of hostile movements like Hezbollah.

The growth of Iran’s capabilities for warfare in the Gulf is changing the military balance in the region, and creating a risk that US and Iranian competition could lead to a major clash or war in the Gulf – not because one is desired, but as an unintended consequence of rising tension and mistrust. These risks feed into, and are strengthened by, the growing tensions over Iran’s nuclear and missile programs that are addressed in *US-Iranian Competition and the Gulf Military Balance, Volume II -- The Missile and Nuclear Dimensions*.

The nuclear dimension of the military competition between Iran and the US and its allies will continue to present problems until it is clear that the Joint Action Plan that Iran and the P5+1 agreed to in November 2013 produces a permanent agreement and Iran has permanently ceased to produce highly enriched uranium and continue to develop the technology necessary to produce nuclear weapons..

The growing confrontation over Iran’s nuclear programs has led each side to build up military forces, prepare their civilian populations for the costs of conflict, conduct war-fighting exercises, and make statements and claims that can provoke the other. Additionally, it has created the risk of an Israeli or US preventive strike on Iran’s nuclear facilities. These risks are described in the next part of this analysis, which deals with Iran’s missiles and weapons of mass destruction and the risk of preventive war and Iran’s attempts to dissuade such an attack.

At the same time, the military competition between the US and Iran has a broader dimension that plays out in the Arabian Peninsula, Iraq, the Gulf of Oman and the Arabian Sea, the Indian Ocean, the Levant, the Arab-Israeli conflict, Turkey, Afghanistan, and beyond. It is a military competition that involves a wide range of other states and non-state actors, waged by proxies and through cyberspace as much as in familiar state-to-state confrontation.

It is a competition where the role of the US cannot be separated from that of its allies – particularly the Arab Gulf states and Israel. It is a competition in which each nation – and its allies – attempts to deny the other side military options, and seeks to establish or reinforce containment, deterrence, and limits on escalation to influence the behavior of other states.

It is also a confrontation that cannot be separated from the broader context of other long standing arms races in the region – conventional, asymmetric, and proxy – or from the history of recent conflict, like the Iran-Iraq War and US efforts to limit the flow of arms and military technology to Iran. Iran continues to build up its asymmetric and proxy capabilities while seeking advanced conventional weapons to replace the losses it suffered in this capacity during the Iran-Iraq War and stemming from its difficulties funding, developing, or purchasing advanced conventional weapons – particularly aircraft and surface-to-air and anti-missile defenses.

There is no way to definitively assess the relative risks of a near-term conflict with Iran, or the risks posed by the ongoing military build-up in the region but these risks are clearly serious enough to be key aspects of US and allied competition with Iran. They affect the security and stability of the Southern Gulf states, key trading patterns, and the flow of some 20% of the world’s petroleum

exports. They increasingly affect other states in the region like Iraq, Syria, Lebanon, Israel, and Jordan.

They are also risks that could grow far worse if Iran persists in developing and deploying nuclear armed forces. Such force would sharply increase Iran's ability to deter US, Israeli, and Gulf Arab strikes on its territory in response to Iranian use of asymmetric forces to traffic through the Gulf or otherwise pressure other regional states. Moreover, Iran could also greatly increase its deterrent capability if it could give its conventionally armed ballistic missiles the kind of terminal guidance that would make them lethal against critical military and infrastructure targets..

These threats explain why the new global strategy that the US announced in early 2012 made the Middle East and Asia the twin focal points of US strategy and force plans. It explains why the US is building up its forces in the Gulf, and strengthening the military forces of the Arab Gulf states. It explains why the US has made diplomatic efforts to halt Iran's nuclear programs a critical priority, and why the US has developed military options to prevent Iran from acquiring nuclear weapons and contain Iran if it should succeed.

They are key reasons why the US is trying to maintain its military arms sales and advisory role in Iraq, work with other regional states like Egypt and Jordan, and partner with global allies like Britain and France. They are reasons why reason the US is working to strengthen its alliance with Israel and Turkey, create meaningful strategic ties to Iraq, and develop new capabilities in the key areas of missile defense and countering Iran's asymmetric forces in the Gulf.

### ***The Historical Background***

The history of US-Iranian military competition is closely associated with the history of political tensions between the US and Iran since the fall of the Shah in 1979, the course of the Iran-Iraq War between 1980 and 1988, the "tanker war" between the US and Iran between 1987 and 1988, violence between Israelis and Palestinians in the 1990s, Iran's perceptions of the impact of the first Gulf War in 1990-1991 and the US invasion of Iraq in 2003, and the presence of U.S. troops on Iran's eastern border since the invasion of Afghanistan.

### **The US and the Arab Gulf states**

The US sees Iran as a state that has been both strongly anti-American since the fall of the Shah and the founding of the Islamic Republic, having held US embassy employees hostage and portrayed the United States as the "Great Satan." The US also perceives Iran as an agent of instability that threatens the region, supports terrorism, backs a hostile government in Syria, and exports aid and arms to insurgents and extremists in Iraq, Afghanistan, and Lebanon. Iran appears to the United States as a nation that is seeking nuclear-armed missiles, that is steadily building up asymmetric forces that threaten friendly Gulf states and the stable flow of Gulf petroleum exports, and that is developing the capability to threaten Israel's existence. It feels Iran aims to become the dominant power in the region while seeking to expel US power and diminish its influence.

The Arab Gulf states share many of these US views. Many saw Iran as a potential threat or rival even at the time of the Shah. When the Shah fell and Khomeini came to power, they saw Khomeini's Islamic revolution as a threat to their governments, a religious challenge, and as a source of hostile Iranian influence over their populations. They welcomed Iraq's invasion of Iran in 1980 and the feared that Iraq would come under Iranian control when Iran went on the counteroffensive after 1984.

While the southern Gulf of states opposed Iraq's invasion of Kuwait in 1990, they saw the US as a key ally and Iran as a continuing threat. While relations improved after Khomeini's death, Iran's seizure of full control over three islands that the UAE claimed in the Gulf, Abu Musa and the Tunbs, the steady build-up of Iranian forces in the Gulf, and Iran's nuclear and missile programs have all led to new tensions between the Arab Gulf states and Iran. Iran's growing role in Iraq, its support of the Hezbollah and Shi'ite in Lebanon, and its support of Shi'ites in Bahrain, Saudi Arabia, and Yemen have also increased these tensions. The Iran's support of Assad and the Alawites in Syria is only the latest in a long series of reasons for the Southern Gulf states to see Iran as a threat and as a reason to join the US in containing it.

### **Iran**

Iran sees the US as an existential threat to its regime and one that has made consistent efforts to dominate the Gulf and the region. Its current leaders view the US in the context of Western pressures on Iran since the late 1800s and a period of US intervention in Iranian internal affairs that began in 1953, which saw it back the Shah and provided him with security assistance until the revolution in 1979. It sees the US role in the region in terms of US support of Iraq during the Iran-Iraq War, US operations against Iran during the "tanker war" from 1987-1988, various US attempts at regime change, and continuing US efforts to deny Iran imports of arms, military technology, and "dual use" goods since 1980.

Iran's leaders feel the US seeks to contain Iran's power and influence and limit Iran's cultural and commercial role. They see the US as continuing to threaten them, as a possible invader, and as a state that might strike preventively to destroy Iran's nuclear programs, to weaken its military forces, and to throw the country into chaos. It also sees the US as leading the charge against it by imposing sanctions, pressuring the EU and UN to follow suit, and championing the cause of growing economic problems and a sanctions regime that has crippled the Iranian economy.

### **Military Competition in the Gulf**

The result of this conflict has been a competition in building and deploying military forces that has now gone on for more than 30 years and which has occasionally led to direct military action. Key events include the Iranian hostage crisis (1979-1981), US seizure of Iranian assets, the imposition of sanctions on Iran, and occasional military clashes (1987-88). The most prominent aspect of US-Iranian rivalry, though, has been the use of proxies.

The recent history of US and Iranian military competition is shown in **Figure 1**. It reflects the fact that Iran has never been able to rebuild its conventional forces as a result of US led efforts to block transfers of advanced modern arms and its massive losses of ground force equipment in climatic battles of the Iran-Iraq War in 1988 – losses which US experts put at some 40% to 60% of its ground order of battle. As a result, Iran has sought to bridge the growing gaps in its conventional capabilities by building a strong asymmetric warfare capacity to deter and defend against attacks and invasion, expand its influence throughout the region, and expand its influence over its neighbors by its capability to threaten targets like tankers and shipping in the Gulf.

After Iran's naval forces suffered tactical defeats at the hands of superior US forces in the Gulf during Operation Praying Mantis (1987-1988), Iran shifted its focus to developing a strong asymmetric capacity utilizing smart munitions, light attack craft, mines, swarm tactics, and missile barrages to counteract US naval power. While such assets cannot be used to achieve a victory against US and allied air and sea forces in a major conflict in the Gulf, they are difficult to counter

and give Iran the ability to strike at larger conventional forces and critical civilian shipping with little if any warning.

Iran has also sought to expand its military influence and deter any US-led conventional attack with its nuclear and ballistic missile programs. These have become a focal point of US-Iranian military competition as well as a broader source of tension between Iran and the West. Iran's missile program dates to the 1980s and the "War of the Cities," and was fully underway during the Iran-Iraq War. While Iran's ballistic missile capabilities were initially limited, the range and sophistication of the country's missiles has increased greatly since its inception in the early days of the Iran-Iraq War. Iran has now created conventionally armed ballistic missile forces that can strike at US allies and US bases in the region with little warning, and could be reconfigured to carry nuclear warheads if Iran can develop them.

An Iranian nuclear program has existed in some form since the 1960s "Atoms for Peace" program, and the US detected efforts to import controlled, weapons-related nuclear technologies during the 1970s. While Khomeini seems to have halted such efforts after coming to power, Iran revised a major new effort to enrich uranium and reach a nuclear breakout capability during the Iran-Iraq War. This effort was a reaction to Iraqi missile and chemical warfare attacks, and included the development of chemical weapons and possibly biological weapons.

The Iranian program accelerated in the 1990s and early 2000s after the US demonstrated its conventional warfare capabilities in defeating Iraq in 1990-1991. Iran's formal nuclear weapons program seems to have paused in 2003, but reporting by the International Atomic Energy Agency (IAEA) and other sources makes it clear that Iran has made steady further advances in its capability to produce nuclear weapons, has all of the technology necessary to produce a nuclear device, has greatly increased its stockpile of low-enriched uranium, and is researching warhead designs for its missiles that could be used to deliver nuclear weapons.

In spite of sabotage, the assassination of some Iranian scientists, and international sanctions, Iran's nuclear program continues to progress. It has reached the point where, according to November 2011 IAEA reporting, Iran has all of the basic technology for fissile weapons, is examining nuclear-armed ballistic missile warhead designs, and possesses a growing stockpile of uranium enriched to 20% – roughly 90% of the enrichment effort needed to produce weapons grade material.

Iran still claims that its nuclear program is peaceful, but its lack of cooperation with the IAEA over the last decade – and the growing range of indicators that it is developing the capability to produce nuclear weapons – make such claims extremely doubtful. In fact, it is possible that Iran may acquire deliverable nuclear weapons at some point in the next two to five years, with a breakout capacity that may be able to give it enough weapons-grade uranium for one device within as little as 3 to 6 months after the decision to produce weapons grade material.<sup>1</sup>

The US has responded to Iran's nuclear efforts with sanctions, efforts to limit Iran's imports of weapons and technology, and the provision of its Gulf allies with advanced military equipment to counter Iran. The UAE, for example, has received the transfer of advanced F-16s. Saudi Arabia has received transfers of billions of dollars of advanced equipment, including AH-64D Apache Longbow attack helicopters, M1 Abrams main battle tanks, and F-15SA multirole fighters. Most Southern Gulf states possess advanced version of the Patriot or THAAD with some missile defense capability and the US has made it clear it will provide more advanced systems in the future. Such systems are far more advanced than Iranian military technology and will counter some of Iran's

asymmetric systems, serving to both limit Iran's influence and provide a major deterrent to Iranian forces.

The US has done everything it can to limit Iran's conventional, asymmetric, and missile warfare capabilities. Even since the fall of the Shah and the rise of the Khomeini regime, the US and Europe have refused to provide Iran with new arms sales as well as military technology, parts, and updates for the systems they sold during the time of the Shah. They have also put continuing pressure on Russia, China and other arms suppliers to limit the transfer of arms.

The US and its allies favored Iraq during the Iran-Iraq War – once Iraq went on the defensive and was seriously threatened by Iran.<sup>2</sup> The US provided substantial support to Iraq in the form of arms sales, intelligence, and technological assistance. The combination of such limits on Iran's arms imports and its massive losses during the Iran-Iraq War have severely restricted the quality and modernization of Iran's conventional forces, and forced Iran to both create a domestic arms industry and find alternatives to conventional military power.

### ***Current Patterns in the Structure of US and Iranian Military Competition***

The military competition between Iran and the US and its allies has steadily intensified since 2001. **Figure 1** provides a summary chronology of the key events in this US and Iranian competition since 2001.

#### ***Figure 1: Summary Chronology of US-Iranian Military Competition: 2000-2012<sup>3, 4, 5</sup>***

#### **2001**

**March** – Russian president Vladimir Putin and Iranian president Mohammed Khatami sign a cooperation and security agreement during a state visit to Moscow, the first since the 1979 Revolution.

**April** – Iran and Saudi Arabia sign a security agreement with the objective of combating drug trafficking and terrorism.

**June** – Five years after a truck bomb destroyed the Khobar Towers in Dhahran, Saudi Arabia; a federal grand jury in the US indicts 13 Saudis and one Lebanese for their role in the attack. The indictment states that all were part of Saudi Hezbollah, an Iranian proxy. The blast killed 19 US servicemen.

#### **October**

– Six years after it halted arms sales to Iran due to US diplomatic pressure, Russia signs a military agreement with Iran that includes the sale of missiles, fighter aircraft, and other armaments.

– Supreme Leader Ali Khamenei condemns the US airstrikes in Afghanistan. However, Iran agrees to perform search and rescue missions for US pilots that crash or are shot down over Iranian soil.

**September** – A CIA report accuses Iran of possessing one of the most active nuclear weapons programs in the world. Moreover, it indicates that Iran is seeking ballistic missile technology from Russia, China, and North Korea.

#### **2002**

**January** – Israeli seize the *Karina A*. They discover that the ship is carrying 50 tons of arms that Israeli officials believe are intended for Palestinian militant organizations.

**January** – US president George W. Bush refers to Iran, Iraq, and North Korea as an “axis of evil” in his State of the Union address.

**August** – The National Council of Resistance of Iran reveals the existence of two secret nuclear sites: a uranium enrichment plant at Natanz and a heavy water production plant in Arak. President Khatami publicly acknowledges the nuclear sites and welcomes IAEA inspections.

**September** – Iran begins construction of its first nuclear reactor at Bushehr with the assistance of Russian engineers and technicians. The move prompts strong objections from the US.

**December** – The US accuses Iran of possessing a secret nuclear weapons program centered on two nuclear facilities at Natanz and Arak, both of which are under construction at the time.

## 2003

**March** – In the wake of the US-led invasion of Iraq, Iran and Syria expand and intensify their cooperation to ensure that they themselves would not become targets as well. Both countries begin to support insurgent groups in Iraq, and expand bilateral defense cooperation.

**May** – Shortly after the US invasion of Iraq, a Swiss diplomat relays Iranian conditions for bilateral talks to the US government. The offer, however, is not considered seriously by the Bush administration.

**September** – IAEA inspectors discover traces of highly enriched uranium at the Natanz nuclear plant and at another site near Tehran. Iran denies its involvement, claiming the traces came from equipment imported from another country.

**October** – Iran reaches an agreement with the EU-3 to suspend all uranium enrichment activities and signs the Additional Protocol that allows unannounced IAEA inspections at Iran's nuclear facilities.

## 2004

**June** – Iran arrests six British sailors for allegedly trespassing into Iran's territorial waters. They are paraded through Tehran and later forced to apologize. All are released three days later after negotiations.

### November

- Iran agrees to suspend uranium enrichment in exchange for trade concessions from Europe.
- Iran and the EU-3 negotiate the Paris Accord, which recognizes Iran's right to pursue nuclear technology for peaceful purposes and its commitment not to acquire nuclear weapons. Iran voluntarily suspends uranium enrichment.

**December** – Iran's intelligence minister announces arrest of more than 10 people for passing sensitive information on Iran's nuclear program to Israel and the United States.

## 2005

### June

- Former IRGC commander and presidential candidate Mohsen Rezaei states that Iran played a larger role in the overthrow of the Taliban than the US gave it credit for.
- Iran and Syria sign a military cooperation agreement to defend against what both sides deemed the "common threats" presented by the US and Israel. The defense ministers of both countries stated in a joint press conference that the agreement was aimed at consolidating defense efforts and strengthening mutual support.
- Iran is given observer status in the Shanghai Cooperation Organization, an intergovernmental mutual security organization that includes Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan. Iran later applies for full membership in March 2008, but its admission is blocked by sanctions imposed on it by the UN.

### August

- George W. Bush makes one of many statements to follow about not ruling out the use of force to halt Iran's nuclear program.
- Supreme Leader Khamenei issues a fatwa forbidding the "production, stockpiling and use of nuclear weapons."

**September** – The IAEA finds Iran in noncompliance with the NPT Safeguards Agreement and refers the matter to the U.N. Security Council

**October** – Iran’s new president, Mahmoud Ahmadinejad, calls for Israel to “vanish from the pages of time.” This statement is widely seen as a threat aimed at Israel.

**November** – Iran’s parliament reacts by passing a bill that would force the government to end its voluntary implementation of the Additional Protocol if Iran is referred to the Security Council.

## 2006

**April** – Washington denies a claim reported in *The New York Times* that the US is considering a tactical nuclear strike on Iran’s underground nuclear facilities. Iran lodges a complaint at the UN, and states that it will retaliate against any attack. Iranian president Mahmoud Ahmadinejad reaffirms that Iran’s nuclear program is peaceful. Iran later offers to hold direct talks with the US regarding Iraq, but withdraws the offer soon after.

**May** – Iran threatens withdrawal from the Nuclear Non-Proliferation Treaty if pressure on its nuclear program escalates following a UN Security Council draft resolution. Later that month, the US offers to join the EU in direct negotiations with Iran if Tehran agrees to suspend uranium enrichment

**August** – President Ahmadinejad inaugurates a heavy water production plant at Arak. The United States notes that the heavy water reactor could be used to produce plutonium for nuclear weapons.

**October** – President Bush signs the Iran Freedom Support Act that imposes economic sanctions on countries, companies, and individuals aiding Iran’s nuclear program.

**December** – The U.N. Security Council adopts Resolution 1737, banning the sale of nuclear technology to Iran and freezing the assets of key individuals and companies affiliated with the nuclear program.

**December** – The UN Security Council passes a resolution that imposes sanctions on Iran over its nuclear program.

**2007**

**January** – Members of the Iranian Revolutionary Guard Corps (IRGC) are arrested in Iraq by US forces for engaging in sectarian warfare. After lumping Iran together with al-Qaeda in the State of the Union address, US president George W. Bush states that he does not intend to attack Iran.

## February

- Iran denies accusations that it is promoting violence in Iraq.

- Iran’s Supreme Leader Ali Khamenei states that Iran would retaliate against US interests around the world if the US were to attack Iran’s nuclear program.

**March** – Iran detains 15 British marines and sailors for allegedly trespassing into Iran’s territorial waters. They are released after approximately two weeks.

**May** – The US and Iran hold the first high-level official talks since the 1979 Revolution in Baghdad. The meeting comes after the Iraqi government holds a security conference attended by regional states and permanent members of the UN Security Council. The talks focus on Iraqi security, and are later followed by more talks in July and November. In the course of these meetings, the US urges Iran to stop supporting Shi’ite militias in the country. The talks, however, do not lead to anything meaningful, and cease after three meetings.

**August** – Iranian officials denounce US plans to designate the IRGC as a terrorist organization as “worthless.” Bush warns Iran over its support for Shi’ite militias in Iraq.

**September** – NATO forces in Afghanistan intercept a large shipment of Iranian arms intended for the Taliban. Among other things, the shipment includes explosively formed penetrators (EFPs). US officials state that the large size of the shipment is indicative that Iranian officials are at least aware of it. Iran denies the accusations.

**October** – The commander of US forces in Iraq, General David Petraeus, claims that Iran is promoting violence in Iraq. Petraeus also accuses Iran’s ambassador to Iraq, Hassan Kazemi Qomi, of being a member of the Al Quds Force, the special operations wing of the IRGC that is responsible for training and equipping Iran’s proxies.

## November



- 20 Iranian citizens held by US forces in Iraq are released.
- The IAEA releases a report that states that Iran supplied transparent records of its past nuclear activities, but emphasizes that it only has limited knowledge of Iran's then-current nuclear activities.

## **December**

- A US intelligence report states that Iran suspended its nuclear weapons program in 2003, but continued to enrich uranium.
- The U.S. government releases its latest National Intelligence Estimate on Iran's nuclear activities, assessing with "moderate confidence" that Iran does not have a nuclear weapons program as of mid-2007. This contradicts the 2005 NIE which stated that Iran was seeking nuclear weapons.
- Iranian president Mahmoud Ahmadinejad hails the report as an Iranian victory. US president George W. Bush states that Iran risks further isolation if it does not reveal the full extent of its nuclear activities.
- US Secretary of Defense Robert Gates states that Iran may have restarted its nuclear weapons program at a conference in Bahrain, despite the US report. Moreover, he states that Iran still poses a serious threat to Middle East security and the US.
- Iran protests US espionage against its nuclear activities in a formal letter to the US.

## **2008**

### **January**

- Iran's Supreme Leader, Ali Khamenei, states that US-Iranian relations could be restored in the future. The US accuses Iran of harassing US Navy ships in the Strait of Hormuz.
- Bush accuses Iran of being the world's leading sponsor of terrorism.

**April** – The US accuses Iran of continuing to support Afghan insurgents.

### **July**

- The IRGC carries out a series of war games and ballistic missile tests during the Great Prophet 3 military exercises. Iran test fired a new version of its Shahab-3 intermediate range ballistic missile, which Iran states are capable of hitting targets in Israel. The tests, however, draw attention over allegedly doctored photographs, and some experts claim that the missile is the shorter range Shahab-3A or the SCUD C, which would indicate no improvement in Iran's ballistic missile technology or capabilities.
- Undersecretary of State William Burns joins the EU-3 in meetings with Iran on its nuclear program. Iran refuses to end or suspend its enrichment activities.

## **2009**

**January** – A White House spokesman indicates that US president Barack Obama will "preserve all his options," and has not ruled out the use of force to confront Iran's nuclear program.

**February** – Iranian president Mahmoud Ahmadinejad announces the launch of the Omid ("Hope"), Iran's first indigenously produced satellite. The launch is seen in the West as veiled research into ballistic missile technology.

**May** – The US Department of State designates Iran as the most active state sponsor of terrorism. Iran responds by stating that the US is in no position to accuse other states of terrorism in light of its actions at the Guantanamo Bay detention camp and the scandal at Iraq's Abu Ghraib prison.

**May** – Iran successfully tests the Sajjil-2 ballistic missile, which the regime states has a 1,500-mile range (the longest range of any of Iran's missiles). The Obama administration responds by stating that the test was a "significant step" in Iran's ballistic missile program, and indicated that Iran was working on enhancing its missiles' payload capacity.

### **September**

- Iran admits to constructing the Fordow uranium enrichment facility near Qom, but states that it is for peaceful purposes.

- Iran shows its Shahab-3 and Sajjil ballistic missiles in a military parade. Additionally, it shows off its Russian-built Tor M1 air defense system for the first time.
- Iran tests a number of different ballistic missiles during the Great Prophet 4 war games, including the Tondar-69, the Shahab-1, the Shahab-2, and the Fateh-110.

**December** – General David Petraeus again accuses Iran of supporting Shi’ite militants in Iraq and providing a “modest level” of support to Afghan insurgents.

## 2010

**January** – Masoud Ali Mohammadi, an Iranian physics professor, is killed in a bombing in Tehran. No group claims responsibility, but the Iranian government claims the US and Israel are behind the attack.

**February** – Iranian President Ahmadinejad announces Iran’s successful enrichment of uranium to 20% U-235 and notes Iran’s ability to enrich even further.

**March** – Iran and Qatar sign a security agreement to combat terrorism and promote security cooperation.

**April** – The IRGC conducts the Great Prophet 5 exercises in the Gulf and the Strait of Hormuz. The exercises include the conspicuous use of IRGC fast attack craft armed with anti-ship missiles against larger, static targets.

**May** – Iran holds the Velayat 89 naval war games in the Gulf and the Sea of Oman. Both the IRGC and the regular navy participate. The games include exercises in chemical and biological warfare, large-scale offensive naval infantry operations, and the use of small, fast-attack patrol craft.

**June** – Congress passes the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010, effectively expanding economic sanctions on Iran’s energy sector.

### August

- Iran successfully tests a new version of the Fateh-110, a short-range ballistic missile with a 155-mile range.
- In what Iran describes as a milestone in its quest for nuclear energy, technicians begin loading fuel into the Bushehr nuclear power plant.

**September** – The Stuxnet computer virus is detected in staff computers at the Bushehr nuclear power plant. The virus is believed to have been created by a nation-state.

### November

- Iran carries out what it terms its “largest ever” air defense drill. The five-day exercise is aimed at defending the country’s nuclear sites from airstrikes, and a number of missiles are test fired, including the S-200 system.
- Targeted bombings leave nuclear scientist Majid Shahriyari dead and nuclear scientist and future head of Iran’s Atomic Energy Agency Fereydoon Abbasi injured.

**December** – Iran announces completion of the last phase of loading fuel rods into the core of its Bushehr nuclear power plant. Then AEOI Director Salehi notes that when it reaches capacity, the 1000-megawatt plant will generate one-fortieth of Iran’s electricity. Iran accuses the IAEA of spying on its nuclear arsenal.

## 2011

**January** – Iran’s nuclear chief, Ali Akbar Salehi, states that Iran now possesses the technology needed to make fuel plates and rods for its nuclear reactors.

### February

- The commander of the IRGC, Brigadier General Mohammed Ali Jafari, unveils the *Khalij Fars*, a guided anti-ship ballistic missile. General Jafari claims the missile is capable of destroying a US aircraft carrier.
- Iran sends two warships through Suez Canal for first time since the Islamic Revolution, in what Israel describes as an act of provocation.

### July

- The Iranian military holds the “Great Prophet 6” war games, during which Iran test-fires new long-range missile designs and reveals the presence of underground missile silos.
- US Secretary of Defense Leon Panetta and Army General Lloyd Austin express concern that Iran is providing Shi’ite militants in Iraq with advanced rockets and other armaments.

**September** – The commander of Iran’s navy, Admiral Habibollah Sayyari, announces Iran’s intention to send warships to patrol the Atlantic, stating following: “Like the arrogant powers that are present near our marine borders, we will also have a powerful presence close to the American marine borders.”

**October** – US officials reveal an alleged Iranian plot to assassinate Adel Al-Jubeir, Saudi Arabia’s ambassador to the US. Iran denies all involvement.

### **November**

- The IAEA releases a report that provides detailed indicators that Iran has weaponized its nuclear program.
- Explosions as a result of apparent acts of sabotage on Iranian nuclear and missile sites. Explosions at a missile site outside of Tehran on November 12 nearly leveled the facility, and killed IRGC General Hassan Moghaddam. On November 28, explosions rocked a uranium enrichment facility outside of Isfahan. Although Iranian officials claimed the event was an accident, the timing of these events makes such a conclusion unlikely.

**December** – Iran makes increasingly aggressive statements regarding the presence of the US 5<sup>th</sup> Fleet in the Gulf, including, but not limited to threatening a US aircraft carrier if it returned to the Gulf.

## **2012**

**Early 2012** – “The Islamic Revolutionary Guard Corps Ground Resistance Forces (IRGCGRF) conducted a series of exercises in northeastern and central Iran. The exercises, MARTYRS OF UNITY in the northeast and SUPPORTERS OF VELAYAT and VALFAJR in central Iran, were the first significant exercises conducted by the IRGCGRF since its reorganization in 2008. The three exercises consisted of combined-arms maneuvers and were meant to show the IRGCGRF’s offensive and defensive capabilities while offering limited training value for the participating units.”<sup>6</sup>

**January** – Iran concludes the Velayat-90 naval exercises, during which the IRGC tested a number of missiles, mines, and torpedoes.

**March** – President Obama and Secretary of Defense Panetta make increasingly direct and aggressive statements that allude to the likelihood of a US strike on Iran’s nuclear facilities should Tehran continue to refuse to cooperate with the international community over its program.

### **July**

- Iran carries out the Great Prophet 7 war games in which the Shahab 3 MRBM is tested. During the three-day exercises missiles are launched at mock US bases in a simulated attack on US bases in Afghanistan and the Gulf.
- Rumors that Iran is either preparing for a war against the US and its regional allies or at least feigning to do so. The deputy commander of the IRGC, Morteza Mirban, states the following: “Today over 3,000 boats are in the Gulf and involved in commerce, constantly passing by America’s naval ships... The question is how can America engage us in war not knowing how it will get hit next? If they dare to take up arms, they will see how they will regret their act.”
- A bus bomb in Bulgaria kills five Israeli tourists, the most recent in a string of bombings targeted Israel internationally. Tel Aviv fingers Iran, alleging that Iran is both retaliating for the murder of nuclear scientists and demonstrating its ability to attack targets around the world in response to a strike on its nuclear program.

### **August**

- The United States and Israel adopt more strident rhetoric regarding Iran’s nuclear program. Israeli calls for a preemptive strike before Iran enters the “zone of invulnerability” prompt Tehran to threaten overwhelming retaliation if it is attacked, leading the US to reemphasize its commitment to all its regional allies (including Israel and the Gulf states).

– Deputy Defense Minister Mohammad Eslami announces plans to develop a new generation of the Saegheh fighter jet, heavy destroyers, semi-heavy submarines, and a new destroyer called the Velayat. He refers to them as part of Iran’s attempt to cope with threats specifically from the United States.

## September

– US conducts naval and minesweeping exercises in the Gulf with partner navies, including ships and observers from France, the UK, Jordan, and Yemen. The exercise is a full-scale test of US and allied abilities to clear mines from the areas around of the Strait of Hormuz (no mine-clearing exercises take place in the Strait, to avoid further antagonizing Iran and complicate civilian traffic in the narrow waterway) and also entails preparations for interdicting sea-borne suicide vessels. In response, Iran initiates a mining drill in the Caspian Sea.

– Iran tests several anti-ship cruise missiles in a live fire drill (termed Great Prophet 7) in the Gulf, claiming that all four worked perfectly to destroy a target vessel. The drill also included Iranian-developed (or reverse-engineered) anti-air missiles as well as UAVs.

– The US removes the Mujahedin-e Khalq (MEK) from its list of foreign terrorist organizations. The MEK had been put on the list in 1997 for targeting Americans and Iranian civilians; its delisting came on the eleventh anniversary of its renunciation of violence. Although the group has largely been demilitarized since 2003, the move was widely criticized in Iran for removing barriers on an organization with a past history of violent attacks on US officers and officials, terrorist attacks following the fall of the Shah, working as a proxy for Saddam Hussein, and acting as little more than an extremist cult for the Rajavis.

## October

– Iran carries out major air defense network drill, testing its anti-air network’s ability to respond to a simulated air strike. The test is seen as a warning for Israel and the US, demonstrating the cost of launching preemptive airstrikes on Iranian nuclear facilities, and is designed to show off Iran’s indigenously produced surface-to-air missiles.

– Iran announces passive defense week to stage cyber drills in five or six areas of Iran, including exercises related to electromagnetic pulse weapons, and the IRGC announces plans to create a cyber-division.

– Iran’s Basij force conducts a massive urban warfare exercise in Tehran called “To Jerusalem” and Deputy Basij commander Ali Fazli claims Iranian UAVs were flying over enemy ships in the Gulf.

– IRGC Mohammad Rasoolallah Unit commander in Tehran asserts exercise, which featured Basij rapid reaction forces, has nothing to do with preparation for potential unrest during 2013 presidential elections.

– Basij Commander Brigadier General Mohammad Reza Naqdi says IRGC is capable of striking U.S. targets anywhere in the world.

## November

– Iranian Army and IRGC stages “Defender of Velayat Skies 4,” a seven day air defense exercise in eastern Iran. The drill tests indigenously produced military equipment and is aimed at improving the interoperability of Iranian air defense systems. According to the Iranian press, the four day war game would be the largest air drills ever held in Iran and involve multiple fighter aircraft, bombers, UAVs, refueling planes, as well as various missile, artillery, radar, and airborne surveillance systems. Iran said the exercise was both offensive and defensive, and designed to improve coordination and integration of regular army and IRGC forces. As part of the drill, Iran allegedly successfully fired its new “Mersad” (Ambush) SAM, supposedly a reverse-engineered US Hawk missile, and claims that its domestically upgraded S-200 variant destroyed a target drone.

– A pair of Iranian SU-25 Frogfoots targets an American surveillance drone over the Gulf. Allegedly using both missiles and cannon, they fail to damage the craft, but chase it farther away from Iranian airspace.

– Iran announces two new industrial developments: the launch of a 100 kg satellite in honor of General Moghaddam, the missile force visionary who died in the explosion at Bid Ganeh and a new hovercraft that will be capable of launching missiles (it is unclear whether Iran means short-range rockets or true cruise missiles).

## December

- The Iranian Navy carries out Velayat 91, a naval exercise in the Gulf and Gulf of Oman. The drill included maneuvers by the IRIN and IRGCN; test-firings of ship-to-ship, surface-to-ship, and surface-to-air missiles; mine-laying drills; torpedo tests alongside domestically refitted submarines; several anti-invasion exercises; and mock cyber warfare during other drills. Velayat 91 also witnessed the unveiling of a new attack helicopter (Toufan 2), a high-endurance UAV, a troop-transport hovercraft, communications gear, and the surface-to-surface Nur missile (allegedly with over-the-horizon targeting).
- Yemen seizes an arms shipment allegedly from Iran. The final destination of the consignment – supposedly around 170,000 mortar shells – is unclear, with suggestions including Yemeni rebels, Hamas, Hezbollah, Iraq (which would rule out Iran as a starting point), or Syria.
- Basij forces stage two drills, in Gulestan and Khuzestan. The exercises in Gulestan were primarily civil defense drills, aimed at preparing for natural disasters and other mass disruptions, while the Khuzestan exercises focused on military operations.
- Iran announces its capture of several US spy drones over the past year, including two RQ-11 drones and one SeaScan UAV. All claims were denied by the US, which stated that it had accounted for all SeaScan vehicles in its inventory.
- The Department of Defense notified Congress of a possible military sale to Israel that includes: 6,900 Joint Direct Attack Munitions (JDAM) tail kits for MK-84, BLU-109 warheads, and MK-82 warheads; 3,450 MK-84 bombs; 1,725 MK-82 bombs; 1,725 BLU-109 bombs; 3,450 GBU-39 Small Diameter Bombs.<sup>7</sup>

## 2013

### January

- Yemeni authorities sized a 103 foot Iranian ship in Yemeni territorial waters that carried Chinese-made made QW-1M MANPADs, C4 explosives, 122mm artillery shells, ammunition, range-finders, night vision equipment, RPGs, bomb making material, and other hand-held explosives. The ship was intercepted by the USS *Farragut*, and the weapons were found in secret compartments. The munitions may have been bound for the Northern Yemeni Houthi rebels who follow an offshoot of Shia Islam.<sup>8</sup>
- Iranian media reported that Iran captured two US RQ-11 Raven drones in August 2011 and November 2012 and that the data had been decoded by the Iranian army. The RQ-11 Raven is a small hand-launched low altitude reconnaissance drone.<sup>9</sup>
- Iran launches a live monkey into space, however, controversy ensues after it becomes apparent that the monkey shown launched in the rockets and the one that returned are different. Experts now conclude that the launch was either faked or the monkey died in space.<sup>10</sup>

### February

- Iran's defense minister unveiled the Qahar 313, a domestically produced modern stealth fighter jet. However, aviation experts criticize it as a fake, with aspects and spaces incongruent to a fully functional aircraft.<sup>11</sup>

### March

- An Iranian Air Force F-4 pursued an unarmed MQ-1 Predator that was conducting surveillance and was escorted by two US military aircraft. The F-4 flew within 16 miles of the US aircraft and left after a verbal warning from the US.<sup>12</sup>
- Iran launched the Jamaran 2, a Mowdige-class destroyer, in the Caspian Sea. The Mowdige-class is sometimes referred to as a light frigate due to its displacement and armament and is equipped with 4 anti-ship missiles and 4 anti-aircraft missiles.
- Iran test-fired the Naze'at-10 and Fajr-5 in Iranian Army war games and test fired an anti-ship ballistic missile that was reportedly a modified surface-to-surface missile.

### April

- Secretary of Defense Chuck Hagel traveled to Israel to finalize a nearly \$10 billion weapons deal to Israel, the UAE, and Saudi Arabia. Israel would receive anti-radiation missile, fighter jet radar, KC-130 refueling tankers, and V-22 Osprey aircraft. The UAE would buy 26 F-16s and air-to-ground missiles and Saudi Arabia would receive the same missiles.<sup>13</sup>
- The US Navy announced that it will deploy a prototype ship-borne laser defense system called the Laser Weapon System on the USS *Ponce* in October 2013 for its tour in the Persian Gulf in 2014. The weapon system is designed to defend a ship against UAVs or small boats, not anti-ship missiles, large aircraft, or other ships. The Navy has successfully destroyed target ships and UAVs.<sup>14</sup>
- The US will expand its assistance to Syrian rebels to \$250 million and expand non-military aid. The aid could include body armor, night-vision goggles, and communications equipment, as well as food and medicine, but not weapons.<sup>15</sup>

#### May

- US CENTCOM conducted International Mine Countermeasures Exercise (IMCMEX), a two week training operation in the gulf aimed at improving US and Gulf ally naval capabilities. “Over 6,500 service members, 35 ships, and three Task Forces operated the length of the Gulf, through the Strait of Hormuz, and into the Gulf of Oman. Task Force platforms included helicopters conducting over 70 sorties, ships steaming over 8,000 nautical miles, and UUVs searching over 70 square nautical miles. More than 40 nations... participated in the largest exercise of its kind in the region.”<sup>16</sup>

#### June

- Nikolai Yakubovsky, Lieutenant Commander of the Russian Navy stationed in the Caspian Sea, announced an upcoming joint exercise with the Russian and Iranian Navies.<sup>17</sup>

#### September

- IRGC Commander Lieutenant Commander Brigadier General Hossein Salami states that, “In the field of science and modern technologies, we managed to break the (global) powers’ monopoly of technologies such as nanotechnology, biotechnology, aerospace and marine sciences.”<sup>18</sup>
- IRGC Navy Commander Rear Admiral Ali Fadavi praised Iranian growth and autonomy in the defense sector and highlighted Iran’s missile capabilities when stating “The IRGC’s coast-to-sea missiles can hit any target in the high seas.”<sup>19</sup>
- Iran announced the completion of modifications to the anti-ship cruise missiles, the Qader (Capable) and Nasr (Victory). These modified missile systems can now be launched from air platforms as well as inland bases and naval vessels.<sup>20</sup> The Qader has an effective range of 200km and the Nasr of 35km. Brigadier General Hossein Dehqan also highlighted the increased precision of Iranian missile systems due to upgrades in laser guided technologies.

#### October

- The Iranian Air Defense Force also called the Khatam al-Anbia Air Defense Base conducted its fifth large scale air defense drill, called Modafe’an-e Aseman-e Velayat 5. The maneuver was led by Brigadier General Farzad Esmaili, the leader of the Khatam al-Anbia Air Defense Base and was conducted across large swaths of northern and western Iran.<sup>21</sup>

#### November

- After months of meetings between the P5+1, comprised of the US, Russia, UK, Germany, France, and China, and Iran, the negotiations culminated with the signing of joint agreement to freeze Iranian nuclear enrichment processes and open up their nuclear sites for IAEA inspection, in return for the partial lifting of sanctions.<sup>22</sup>

#### December

- Iran announced the capability to mount and fire its domestically produced Sayyad 2 missile from the Russian bought S200 surface-to-air missile system.<sup>23</sup>

- IRGC Commander Lieutenant Commander Brigadier General Hossein Salami states that, “In the field of science and modern technologies, we managed to break the (global) powers’ monopoly of technologies such as nanotechnology, biotechnology, aerospace and marine sciences.”<sup>24</sup>
- Secretary of Defense Chuck Hagel reiterated that despite the new US-Iranian agreement, the US defense posture in the gulf has not fundamentally changed. “We have a ground, air, and naval presence of more than 35,000 military personnel in and immediately around the Gulf... As part of our efforts to ensure freedom of navigation through the Gulf, we routinely maintain a naval presence of over 40 ships in the broader region.”<sup>25</sup>
- Iran purportedly launched a second rocket into space with a rhesus monkey aboard, as a part of their effort to develop manned spaceflight capabilities. The rocket’s name, Pajohesh, means “research” in Farsi. The actual launch and its success cannot be independently verified.<sup>26</sup>
- Iranian Defense Minister Hossein Dehqan announced that it is on the Iranian military’s agenda to attach jet engines to Iranian UAVs in the future.<sup>27</sup>
- The US Department of Defense approved the sale of nearly 14,000 tracked wire-guided (TOW) missiles, sold by Raytheon at an estimated cost of \$1.1 billion, to Saudi Arabia. The anti-tank systems will add to Saudi Arabia’s stockpile of 4,000, which they purchased from the US in 2009.<sup>28</sup>
- Secretary of Defense Chuck Hagel highlights plans to sell an integrated system of radars, sensors, and missile defense systems to the Gulf Co-operation Council members. Hagel also encourages a GCC defense minister conference within the next six months to improve cooperation and strengthen security ties.<sup>29</sup>

## 2014

### January

- Commander of the Iranian Air Defense Force, Brigadier General Farzad Esmayeeli claimed that the Iranian S200 surface-to-air defense systems are now mobile, and that his unit will now train in new tactics to better take advantage of the mobile systems to improve Iranian air defenses.<sup>30</sup>
- The US offers Iraq hellfire missiles and defense drones to help in their struggle against Sunni militants in Anbar province.<sup>31</sup>

## Iran’s Conventional Forces

While the world tends to focus on Iran’s nuclear programs, the current patterns of military competition between the US, Iran’s Arab neighbors and Iran have four major aspects: Iran’s conventional forces, Iran’s asymmetric forces, Iran’s long-range missile forces, and Iran’s search for nuclear weapons.

The competition in conventional forces is one that has gone on ever since the fall of the Shah in 1979. Iran maintains large conventional forces with significant capabilities to threaten and to influence its neighbors. It is improving its ability to deter US naval and air operations, as well as potential operations by Israel and other states, and it has significant military options it might use against Iraq, targets in the Gulf, Gulf of Oman, and the GCC states. As the Israeli-Hezbollah War and use of shaped-charge IEDs in Iraq have shown, Iran has also strengthened its proxies in other areas where it is engaged in direct and indirect competition with the US.

Iran seeks to use its conventional forces to intimidate its Arab neighbors in the Gulf, help constrain US and US-allied operations in the Gulf, reducing America’s ability to affect Tehran’s policy choices. The end result is a constant and growing challenge to the US in the Gulf region,

particularly in terms of air, missile, and naval warfare, as well as a challenge to the US in providing military support and transfers to the GCC states, Israel, and Iraq.

Iran has not modernized its conventional force at anything like the rate of the US or its Southern Gulf neighbors, but does still seek to improve its conventional forces in ways intended to expand its influence, limit US military options, provide the ability to intimidate its neighbors, and increase its power projection capabilities. Iran has also responded to the limits in its conventional forces by developing the non-traditional part of its military, the IRGC, into a mix of asymmetric and conventional forces that can protect Iran from invasion.

The IRGC has built upon the lessons of its past conflicts, the actions of its proxies and the various other force elements it supports, and the lessons of other insurgencies and conflicts in the broader Middle East. In the process, both the IRGC and Iran's conventional forces have become steadily more capable of waging asymmetric warfare against US and other Gulf conventional forces.

This does not mean that Iran has ceased trying to obtain additional modern land-based air defenses, modern combat aircraft, and upgrade or produce a wide range arms and munitions. The US seeks to counter Iran by denying it modern conventional arms, improving its own forces and power projection capabilities, developing systems that specifically counter Iranian asymmetric threats, and building up the forces of friendly Arab Gulf states, particularly those of Saudi Arabia and the UAE. Both Iran and the US compete for influence over Iraq's future military development.

Iran has had some successes in improving its conventional forces and adding asymmetric forces that can supplement them. Iran has successfully imported Russian submarines, North Korean midget submarines and fast attack craft, and a variety of modern Chinese anti-ship missiles. It has acquired modern Russian and Chinese air-to-air, air-to-ground, short-range air defense (SHORAD), and anti-armor missiles. It has acquired modern Russian homing torpedoes and is reported to possess advanced types of Russian and Chinese mines. It also is slowly creating the capability to design and manufacture its own major conventional weapons systems, with a particular emphasis on cruise missiles, ship-to-ship missiles, and surface-to-air weapons.

The US has, however, had considerable success in helping the Arab Gulf states improve their defense capabilities, in persuading other states not to sell Iran modern major weapons system and to help pass UN resolutions discouraging the transfer of advanced arms to Iran. This has forced Iran to try to produce many of its own systems with only limited success.

Iran is still heavily dependent on major weapons and equipment that date back to the time of the Shah and which was worn out by the stress of the Iran-Iraq War. Iran has not been able to acquire large numbers of modern armor, combat aircraft, longer-range surface-to-air missiles, or major combat ships. Partly because of US efforts, much of its conventional military force is obsolescent or is equipped with less capable types of weapons.

As a result, much of the US and Iranian competition in conventional forces depends on how other nations treat arms sales to Iran. Iran has negotiated with Russia over sales of advanced types of modern combat aircraft, surface-to-air missiles, and ballistic missile defenses. It also actively seeks advanced systems from other countries. With its most significant deficiencies in command and control networks, Iran has concentrated on obtaining the computers and systems that will allow it to integrate its weapons.



## **Asymmetric and Irregular Warfare**

Iran has made far more successful efforts to improve its capabilities for asymmetric warfare, and to use those forces to pressure, threaten, or attack other powers in ways that the US finds difficult to counter. These Iranian efforts have focused on improving the capacity of Iran's Islamic Revolutionary Guards Corps (IRGC), but they affect every aspect of Iran's military and security efforts. Any weapon and any type of force can be used in asymmetric, irregular, or hybrid ways—from a terrorist proxy to a nuclear weapon.

Iran has already demonstrated its ability to use its forces in asymmetric and irregular warfare in a number of ways:

- Iranian tanker war with Iraq
- Oil spills and floating mines in the Gulf
- Use of Al Quds Force in Iraq
- Series of IRGC and naval/air exercises in Gulf and Gulf of Oman
- Iranian use of UAVs over Iraq
- Funding and training of Hezbollah, including provision of UAVs, long-range rockets, and Kornet ATGMs to Hezbollah
- Incidents and demonstrations during pilgrimage in Mecca
- Transferring shaped charges and other advanced IEDs to Mahdi Army and others in Iraq; training of Iraqi insurgents
- Arms flows into western Afghanistan
- Shipments of arms to Hamas and other Palestinians radicals
- Supply of arms and training to al-Assad regime in Syria
- Support of Shi'ite groups in Bahrain and Saudi Arabia
- Long-range ballistic missile and space tests; expanding range of missile programs. Iranian public description of possible missile attacks on Israel that indirectly demonstrate Iran's capability to attack its neighbors
- Naval guards seizure of British boats, confrontation with US Navy
- Long series of IRGC and Iranian military exercises in Gulf demonstrating ability to attack coastal targets, shipping, and offshore facilities
- Alleged bombings and attempted bombings directed at Israelis in Bulgaria, Georgia, Thailand, and India
- MOIS casing of U.S. and Israeli soft targets in the region
- MOIS training and joint cyber warfare operations against U.S., Israeli, and allies
- Use of Qods Force outside the region (e.g., Latin America, Africa)

Iran's military efforts to compete with the US and its Gulf neighbors by developing advanced capabilities for asymmetric warfare cannot be separated from Iran's emphasis on missiles and weapons of mass destruction (WMD). Both compensate for the limits of its conventional forces and act as a substitute. Moreover, if Iran does acquire – or is perceived to acquire – nuclear weapons, this will have some impact on deterring any response to Iran's use of asymmetric warfare. Iran's neighbors, as well as the US, Britain, France, and Israel must then at least consider the risk that Iran will escalate.

Iran has also gone to considerable lengths to use proxies to undermine the US presence and influence in regional countries. Examples include Iranian support for Shi'ite militant groups in Lebanon such as Hezbollah and Islamic Jihad, which led to the 1983 bombing of the US Marine barracks in Beirut, an event that pushed the US military presence out of the country. More recently, Iran has provided extensive material support and training to Shi'ite militias in post-2003 Iraq, which have constituted a thorn in the side of Coalition forces as well as a major obstacle to the establishment of a stable Iraqi state. Iran has also intermittently supported Kurdish militant groups, providing it strategic leverage against the only NATO state on its border, Turkey.

Iran's developments in asymmetric warfare have led the US to respond by seeking both escalatory dominance and countermeasures to Iranian tactics. Regarding escalation, US military leaders have repeatedly made clear that the US has the capacity to suppress the Iranian air defense network and pound targets in Iran by cruise missiles and air strikes should the military situation escalate. It has made this threat clear by shifting carriers to the Gulf along with increasing numbers of aircraft (including F-22s).

The US has run exercises and pushed new technology to specifically compete with Iranian asymmetric threats. The International Mine Counter-measures Exercise (IMCMEX), completed in September 2012, while officially a purely defensive drill, was primarily aimed at demonstrating both the US's anti-mine capabilities and the number of states that would support the US against Iran in case Iran did target the Gulf. The US has also been exploring weapons that would hinder Iran's small boat and missile swarms, developing the Littoral Combat Ship and exploring light weapons such as the *Spike* that could cheaply and effectively target massed attacks.

### **Expanded Areas of Operation and Influence**

The strategic focus of US-Iranian military competition centers on Iranian efforts to build up Iran's military capabilities in the Gulf, Strait of Hormuz, and Gulf of Oman. Iran also, however, has used tools like the Al Quds force and support for extremist or armed groups in many other areas – including the Levant, Gaza, Afghanistan, and Latin America.

USCENTCOM and senior US officers have publically stated that Iran has a limited capability to halt most commercial shipping through the Gulf for a short period. Speaking on Iran's ability to close the Strait of Hormuz, the strategic shipping lane linking the Gulf of Oman and the Gulf, Joint Chiefs of Staff chairman, General Martin Dempsey stated in January 2012 that:

“They've invested in capabilities that could, in fact, for a period of time block the Strait of Hormuz.” - Joint Chiefs of Staff chairman General Martin Dempsey, January 9, 2012.<sup>32</sup>

Several days later, Admiral Jonathan Greenert also responded to Iran's threats and claims close the Strait:

“If you ask me what keeps me awake at night, it's the Strait of Hormuz and the business going on in the Persian Gulf.” – Admiral Jonathan Greenert January 11, 2012.<sup>33</sup>

In August 2012, Dempsey and Secretary of Defense Leon Panetta appeared together on CBS Face the Nation. Dempsey reiterated that Iran has the military power to block the Strait of Hormuz for a period of time, but that the U.S. would take action to reopen it. Panetta added that the United States would not tolerate the blocking of the Strait, calling it a redline that would elicit a military response.

Few doubt that Iran now has a mix of forces that can carry out low-level attacks and harassment over extended periods of time in ways that would make it difficult for the US and its allies to respond effectively by escalating in a manner that would seem justified. Iran has put considerable effort into weapons systems with plausible deniability, allowing it to target tankers, foment unrest in America's Arab partners, strike civilian targets around the world, and otherwise threaten US interests while avoiding responsibility.

The US does, however, retain the advantage in scenarios that involve an Iranian attempt to "close the Gulf." Despite Iran's steadily advancing capabilities in asymmetric and proxy warfare, Iran's forces, territory, military and military production facilities, and critical infrastructure are still vulnerable to US conventional forces and devastating precision attacks on Iran's military and economic assets

This helps explain both Iran's efforts to develop nuclear weapons and the kind of missile forces that could destroy key military and infrastructure targets with conventionally armed warheads. Iran badly needs to increase its ability to deter US and Arab Gulf conventional strike if it is to use its asymmetric or conventional forces freely in the Gulf.

As for other areas, **Figure 2** shows that this competition also extends throughout much of the Middle East and North Africa, into Central and South Asia, and beyond; Iran is seeking the capability to challenge the US and other Gulf states with a mix of capabilities ranging from free-floating mines and small craft with anti-ship missiles, to the ability to conduct air attacks on key targets like desalination plants, as well as missile attacks on military bases and cities.

US-Iranian extra-regional competition is currently strongest in the Levant, and Iranian military backing for Bashar al-Assad's Syrian regime and the Lebanese party-cum-militia Hezbollah demonstrates Iran's continuing effort to expand its influence beyond the Gulf. Iran exploits the Israeli-Palestinian conflict, and its arms transfer and Al Quds Force are deploying growing arsenal of unconventional weapons. At the same time, Syria provides Iran with weapons systems, equipment, and technology banned under Western or UN sanctions.

### **Missiles and Weapons of Mass Destruction**

Iran is a declared chemical weapons power, has long-range missiles, may be developing biological weapons, and seems to be seeking nuclear weapons to counter the US's ability to threaten and deter Iran, as well as gain influence over its neighbors. The US is seeking to prevent Iran from acquiring nuclear weapons and long-range missiles while simultaneously developing options to deter and defend against Iran if it should succeed.

A November 2011 report by the IAEA and new reports in 2012 list strong indicators that Iran has been moving towards a nuclear weapons capability since the mid-1980s. This seems to be a process that has been going on since the Iran-Iraq War and grew out of Khomeini's decision to resume nuclear research once Iran came under chemical weapons attack from Iraq.

IAEA and other reports show that Iran developed underground nuclear facilities that it initially attempted to keep covert and expressed an active interest in designing nuclear warheads for its ballistic missile fleet. Reports also show that Iran is making advances in centrifuge design that could greatly increase enrichment capacity as well as making it easier for Iran to create small, dispersed sites that will be far harder to detect.

As a result, much of the asymmetric and conventional military balance in the region depends on the success or failure of the agreement on Iran's nuclear programs that the P5+1 and Iran reached in November 2013. The P5+1 and Iran interim agreement calls for Iran to halt enrichment of Uranium above 5% and requires it to dilute half of their current stock of 20% enriched Uranium. Iran must also allow IAEA inspections at its reactors and mining facilities. Inspections at the Arak heavy water facility have already occurred, and inspections at the Gachin mine will be conducted in early 2014. Under the joint agreement, and reiterated by Iranian officials, no inspections will occur at Iranian military facilities. The key issues are whether Iran will honor the interim agreement which lasts through June 20, 2014, whether Iran and the P5+1 can agree on a lasting comprehensive agreement, and whether Iran then fully complies and gives up all weapons-related activity.

Iran is a declared chemical weapons power. It states it no longer has such weapons, but it has never fully complied with the Chemical Weapons Convention (CWC) nor stated its holdings. It probably has the capability to manufacture persistent nerve gas. It has stated to the CWC that it has no stockpiles of chemical weapons, but this is extremely difficult to verify.<sup>34</sup> Iran could certainly produce unitary warheads, bombs, and shell relatively quickly and probably has some cluster weapon capability, although experts caution that to date there has been no recent evidence of weaponization of chemical stores.

Iran is a signatory to the Biological Weapons Convention (BWC), but there are no firm data to indicate whether it does or does not have an ongoing biological weapons program.<sup>35</sup> It is clear, however, that Iran does have the civilian R&D and bio-manufacturing capabilities to develop and produce advanced biological weapons – and could do so as either a supplement or substitute for nuclear weapons. Iran could acquire the ability to develop even more advanced genetically engineered biological weapons within the next five years through the course of normal improvements in domestic biotechnology, roughly the same timeframe required to deploy a nuclear force.<sup>36</sup>

There is no meaningful inspection regime for the BWC and US studies raise serious questions as to whether such a regime is even possible. Accordingly, even if Iran did fully comply with all IAEA requirements, it could still develop and produce weapons of mass destruction. Similarly, there is no enforceable way that a true WMD free zone can be established and enforced in the Middle East – or any other area with advanced biotechnology.

Iran's missile programs represent a critical part of its military efforts and expenditures. Iran is making major advances in its long-range missiles, including the development of solid fuel systems. Its longer-range missiles have not, however, been tested in ways that demonstrate the reliability and accuracy required to be effective against anything other than area targets, unless they are armed with nuclear warheads. A chemical missile with restricted precision would have such limited lethality that it would be more a weapon of terror rather than a true weapon of mass destruction or truly effective in a military confrontation.

So far, the US has attempted to prevent Iran from building and deploying nuclear weapons through the use of sanctions and covert action designed to degrade the program's human and physical capital, along with developing military options for preventive strikes if negotiations fail. It also has taken step to deter and defend against Iran's missile and nuclear programs by seeking to develop US and regional capabilities like missile defense and by offering its allies "extended regional deterrence."

The current agreement and ongoing inspections process in Iran is a possible first step towards slowing and reducing Iran's nuclear weapons program. However, Iran is maintaining a significant portion of its highly enriched Uranium, and may be able to evade inspectors by hiding parts of its nuclear program on military bases and at other sites. Iran also may continue or even increase its chemical and biological weapons programs to counter-balance the reduction in its nuclear weapons program.

### ***Differing National Perspectives***

As is the case with every other aspect of US and Iranian competition, their military competition is shaped by very different US and Iranian perceptions, politics, cultural factors, and views of history – and is influenced by the actions of other countries in the region and external powers.

While exact ways in which the Gulf States will respond to Iran's nuclear efforts remain uncertain, they are steadily building up the military capabilities to help deter or defeat Iran's conventional, asymmetric, and missile threats. Regional allies like Jordan play an important role, as does the US-Iranian competition for influence in Iraq. Britain and France play a critical role in working with the US to both project power and help develop Gulf military and internal security forces.

The main wild card in this process of growing cooperation lies in efforts to end Iran's search for nuclear weapons. It is not clear how much support the Gulf states or other US allies will provide to any US preventive strikes on Iran's nuclear and missile facilities, how they would treat any Israeli preventive strike, or how they would regard containment if Iran obtained a nuclear weapons capability.

This is an area of US-Iranian competition where neither the US or Iran can ignore either the possibility that a state like Saudi Arabia will seek its own nuclear weapons and so spark a nuclear Gulf arms race, or that Israel will take the Iranian threat so seriously that it redoubles its own nuclear and missile programs.

Like the US, Israel has examined military options for strikes on Iran that could delay or prevent it from acquiring nuclear weapons. Israel is also making major improvements to its missile defense programs. As is discussed later in this study, Israel currently has the capability to target Iran with nuclear-armed missiles, and is reported to be developing nuclear-armed cruise missiles for its Dolphin submarines.

Israel has had French fission and fusion nuclear weapons design and test data for decades. While Iran is still developing fission designs, Israel is probably targeting Iran with boosted and thermonuclear weapons. As a result, there is already an existential nuclear arms race in the region, although at present it is Iran and not Israel that is the target.

### **US Perceptions**

While US politics tends to emphasize the nuclear issue, American policymakers and planners focus on the full spectrum of Iran's military capabilities as they affect the entire region as well as state and non-state actors outside it. They also focus on the full range of Iran's military actions, intentions, and capacities, and on the fact Iran plays a growing role outside the Gulf and Levant that the US and many of its other allies perceive as an additional threat.

The US Secretary of Defense summarized Iran's strategy as follows in the unclassified version of his annual report on Iranian forces that he sent to Congress on June 29, 2012,<sup>37</sup>

There has been no change to Iran's strategies over the past year. Iran's grand strategy remains challenging US influence while developing its domestic capabilities to become the dominant power in the Middle East. Iran's security strategy remains focused on deterring an attack, and it continues to support governments and groups that oppose US interests. Diplomacy, economic leverage, and active sponsorship of terrorist and insurgent groups, such as Lebanese Hezbollah, Iraqi Shia groups, and the Taliban, are tools Iran uses to increase its regional power. Iran's principles of military strategy remain deterrence, asymmetrical retaliation, and attrition warfare.

Iran seeks to increase its stature by countering US influence and expanding ties with regional actors while advocating Islamic solidarity. Iran also desires to expand economic and security agreements with other nations, particularly members of the Nonaligned Movement in Latin America and Africa.

With the advent of the Arab Spring in 2011, Iran saw opportunities to increase its influence by supporting groups opposed to regimes in power, particularly those perceived to support US interest. Iran publicized its belief that these popular, democratic uprisings were inspired by its own 1979 revolution.

Outside the Middle East, Iran's efforts to expand political, economic, and security ties with a range of countries demonstrates Tehran's desire to offset sanctions and diplomatic isolation.

Iran continues to use a multipronged strategy in Iraq, including engagement with leaders across the political spectrum, outreach to the Iraqi populace, and continued support to Iraqi Shia militants and terrorists, such as Kataib Hezbollah, Asaib Ahl al-Haq, and the Promised Day Brigade, in the wake of the US military withdrawal. Iran provides money, weapons, training, and strategic and operational guidance to Shia militants and terrorist groups to protect and preserve Iran's security interests, including threatening the residual US presence. In addition to providing arms and support, the Islamic Revolutionary Guard Corps-Qods Force (IRGC-QF) is responsible for training Iraqi militants and terrorists in Iran, sometimes using Lebanese Hezbollah instructors.

Iran continues to influence events in Afghanistan through a multifaceted approach, including support for the Karzai government while also supporting various insurgent groups. Tehran maintains ties with leaders across the political spectrum and continues to be involved in a number of humanitarian, economic, and cultural outreach activities among the Afghan populace. Although Tehran's support to the Taliban is inconsistent with their historical enmity, it complements Iran's strategy of backing many groups to maximize its influence while also undermining US and North Atlantic Treaty Organization (NATO) objectives by fomenting violence.

Iran has been involved in Lebanon since the early days of the Islamic Republic, especially seeking to expand ties with the country's large Shia population. The IRGC-QF continues to provide money, weapons, training, and logistical support to Lebanese Hezbollah and views the organization as a key to tool in its efforts to pressure Israel.

Since the beginning of the Syrian unrest, Iran has supported President Bashar al-Assad while downplaying the depth of this support in public. Iran's support to the Assad regime has included military equipment and communications assistance. Iran probably has provided military trainers to advise Syrian security forces.

There has been no change to Iran's strategies over the past year. Iran continues to seek to increase in stature by countering US influence and expanding ties with regional actors while advocating Islamic solidarity. Iran also desires to expand economic and security agreements with other nations, particularly members of the Nonaligned Movement in Latin America and Africa.

Iran's military doctrine remains designed to slow an invasion; target its adversaries' economic, political, and military interests; and force a diplomatic solution to hostilities while avoiding any concessions that challenge its core interests. Iran over the past year publicly threatened to use its naval forces to close the Strait of Hormuz in response to increasing sanctions and in the event Iran is attacked. Iran also has threatened to launch missiles against US interests and our allies in the region in response to an attack and has issued threats to support terrorist attacks against US interests.

American planners increasingly focus on the fact that Iran has begun to compete with the US on a global basis. Iran's actions range from interfering in the internal affairs of Morocco to an anti-American political and propaganda alliance with the Chavez regime in Venezuela to its slowly

growing involvement with the Shanghai Cooperation Organization. At the same time, American policymakers and planners have repeatedly made it clear that Iran poses an asymmetric threat in the Gulf and to all of its neighbors, and that Iranian policies could lead to a major crisis in Gulf petroleum exports and world oil markets. The US is now deeply involved in a de facto alliance with the Southern Gulf states to deal with these threats that involves major weapons sales, military exercises, and mil-mil contacts, as well as more locally led partnerships with Jordan and Egypt for finding ways to contain Iran and limit its ability to pose a security threat to Iraq.

### ***Perceptions of the Iranian Threat***

American policymakers and planners feel that Iran's missile and potential nuclear weapons capabilities threaten the entire Gulf, many other Arab states, and Turkey. American policymakers also see Iran's missiles as a potential threat to Europe in any confrontation where it seeks to deter US military action. Iranian missiles also pose a broader threat to American allies, with current designs able to strike states with a combined GDP in excess of \$5 trillion.

Israeli leaders have made it clear that they feel Iran not only threatens Israel, but the Arab-Israeli peace process as well. The US must deal with the fact that Iran opposes the current Arab-Israeli peace negotiations and is probably unwilling to accept any broad Arab-Israeli peace settlement in the near future – although its influence in the region is restricted by the willingness of the state and non-state actors it supports to act as proxies and obey Iranian directives.

Furthermore, Iranian statements and policy lead American planners to believe that Iran increasingly seeks to challenge both naval access to the Gulf and the basic principles of freedom of navigation and trade that have underpinned US power and its role in the Gulf for the last three decades. Iranian military research, development, and acquisition policies that emphasize closing the Strait of Hormuz – targeting not only American warships but third-party commercial vessels – are seen as a direct economic as well as military challenge to the United States.

These concerns are heightened by American uneasiness regarding the level of restraint the Iranian leadership and decision-making process will exhibit under crisis conditions or if a major clash or conflict begins to escalate in the Gulf or elsewhere in the region. In general, US experts and policymakers feel that Iran's leadership is cautious, pragmatic in assessing risks, and able to control most actions by Iran's military, IRGC, and groups like the Al Quds force. However, some US experts also feel that public threats by Iranian leaders, especially coming from former President Ahmadinejad and some elements of the senior IRGC leadership<sup>38</sup>, raise fears that Iran might take significant risks in escalating some clash in the Gulf or in responding to an Israeli or US preventive strike.

### ***Problems in Understanding Iran's Leadership and its Perceptions***

US perceptions are complicated by the fact that the functional politics and nature of the lines of command and control within the Iranian political and military leadership are not well understood. The unclear relationship between the President, Supreme Leader, and commanders of the IRGC and regular military does generate some concern that elements of the security forces could provoke or escalate conflict while others publicly push for stability.

While there is no firm consensus among US experts, most seem to feel that the Supreme Leader and a cadre of active and retired members of the IRGC do seem to be firmly in control. The tensions that led to the creation of the IRGC and the regime's lack of confidence in the regular military faded during the course of the Iran-Iraq War and as a result of a series of purges and exposures of

officers with ties to the US, and military and civilian leaders seem to have received something approaching a *modus vivendi* during the long period of low-level regional conflict since the Iran-Iraq War.

It is clear that some tensions do remain, that Iran's forces are heavily compartmented or stovepiped, and that some divisions exist even in terms of IRGC factions supporting the Leader and the President. At the same time, virtually all of the officers that served under the Shah have now been retired, and the past tensions between the services and IRGC seem much less severe. While there have been reports that elements of the IRGC were loyal to Ahmadinejad, it is far from clear that any significant part of the IRGC command structure or any element of the security services has not remained loyal to the Supreme Leader.

US views of the flow of authority from the Supreme Leader's office to the Armed Forces General Staff (regular armed forces), and the IRGC command is less clear, as is the way in which the Iranian equivalent of the National Security Council functions, although most recent analysis suggests that the Armed Forces Chief of the General Staff, IRGC commander, and Al Quds force commander all report directly to Ayatollah Khamenei.<sup>39</sup> The same is true of the way in which the intelligence branches and Basij are controlled and of the level of independence offered the Al Quds Force. It is not clear, however, that any major fracture lines exist – as distinguished from serious internal coordination and stovepiping problems that are more bureaucratic than the result of power struggles or a lack of control. Similarly, most of the cases where members of the IRGC or Al Quds force did seem to act independently may well be the result of a system that encourages independent initiative within guidelines set at higher levels and rewards this with promotion.

More generally, President Bush, President Obama, and a number of senior US officials and officers have made it clear that the US has developed military options for striking at Iran's nuclear and missile programs. American leaders have also made it clear that they neither view military competition as inevitably leading to some form of war fighting nor see the use of such military options as desirable.

American policymakers – and most European ones as well – currently act on the perception that the Iranian threat can best be dealt with using options like sanctions and negotiations and by focusing more on diplomatic tools, although American leaders make it clear that military options remain on the table. Key US military leaders like Admiral Mullen, General Petraeus, and General Dempsey have made it clear that they oppose any near-term Israeli strike on Iran, and see such actions as deeply destabilizing at a time when the US is still engaged in Iraq and Afghanistan, and is dealing with a broader struggle against violent Islamic extremists.

### **The US Focus on Arab and Southern Gulf Allies**

All of these trends have reinforced the security ties between the United States and the Arab Gulf states – including Kuwait, Saudi Arabia, Bahrain, Qatar, the UAE and Oman – as well as states like Jordan and key European allies like Britain and France. As another volume in this series— *US-Iranian Competition and the Gulf Military Balance, Volume III, The Gulf and the Arabian Peninsula* – makes clear, this has led to major US training, arms transfer, military exercise activity involving the US, its Arab allies, and European power projection forces.

It also explains why the new US strategy announced in January 2012 – *Sustaining US Global Leadership: Priorities for the 21st Century* – gave equal priority to the Middle East and Asia and put a major new emphasis on strategic partnerships in the region:<sup>40</sup>



This country will have a global presence...emphasizing the Asia-Pacific and the Middle East...Our defense efforts in the Middle East will be aimed at countering violent extremists and destabilizing threats, as well as upholding our commitment to allies and partner states. Of particular concern are the proliferation of ballistic missiles and weapons of mass destruction (WMD). U.S. policy will emphasize Gulf security, in collaboration with Gulf Cooperation Council countries when appropriate, to prevent Iran's development of a nuclear weapon capability and counter its destabilizing policies. The United States will do this while standing up for Israel's security and a comprehensive Middle East peace. To support these objectives, the United States will continue to place a premium on U.S. and allied military presence in and support of partner nations in and around this region

Then Secretary of Defense Leon Panetta said when the new strategy was introduced,<sup>41</sup>

"The nature of warfare today is that as you engage, you have to look at how you do it, what forces you use, and what exactly is involved," he continued. "The reality is we could face a land war in Korea and at the same time, threats in the Strait of Hormuz. We have the ability with this joint force to be able to do that -- to confront them and be able to win -- and that's what counts."

And his replacement, Secretary Chuck Hagel stressed that this strategy still applied in May 2013, in spite of growing pressure on the US to reduce its defense spending and security efforts,<sup>42</sup>

As you all know, President Obama has made it clear, very clear, that our policy is to prevent Iran from obtaining a nuclear weapon, and he's taken no option off the table to ensure that outcome. I stressed that point during my discussions in the gulf.

A key element of our efforts to counter Iranian threats is building a cooperative defense network, raising the military capabilities of our partners in the gulf who share our commitment to regional security and our concerns about Iran and violent extremism on the Arabian Peninsula.

While in Saudi Arabia and UAE, I finalized agreements to provide their Air Forces with access to significant new capabilities. Saudi Arabia has committed to purchasing all 84 Boeing F-15SA fighter aircraft that were part of a landmark sale in 2010. The United Arab Emirates is moving forward with the purchase of 25 F-16 Desert Falcons, which will further enhance their ability to participate in coalition operations such as Libya and Afghanistan, where they have made important contributions and will continue to make important contributions.

Along with other common efforts with gulf states in areas such as missile defense, this new arrangement ensures that we are coordinating effectively against Iran and other shared security challenges. Our joint exercises, including land, air, and sea scenarios, allow U.S. and Gulf Cooperation Council militaries to maintain readiness and improve the ability of our forces to work seamlessly together. One example is the International Mine Countermeasure Exercise, which began this week in the Persian Gulf and hosted by the U.S. 5th Fleet.

A robust U.S. military presence in the Persian Gulf has been a priority for the department. Even as the number of U.S. troops in the region has decreased since the end of the Iraq war, even though that has been the case, we have made a determined effort to position high-end air, missile defense, and naval assets to deter Iranian aggression and respond to other contingencies, such as F-22 fighters, ballistic missile defense ships, and sophisticated radars, mine-countermeasure assets, and advanced intelligence, surveillance and reconnaissance aircraft.

We have also maintained a significant U.S. Army presence in Kuwait. Even as we put our presence on a more sustainable long-term footing, our capabilities in the region will far exceed those that were in place September 11, 2001. Our defense relationships are also much stronger and far more robust and sophisticated.

The Department of Defense is adjusting its global footprint and activities. We're doing this because we must adapt to declining defense budgets at home, but the president's defense strategic guidance makes very clear that the Middle East remains a top priority and that we will remain prepared to deal with the full range of threats to our interests, our allies' interests at this time of uncertainty and turmoil.

Each nation in the region is different and facing different combinations of threats and challenges. But these are regional challenges. All regional challenges I've described tonight, whether it's the nuclear challenge

posed by Iran, dangerous instability in Syria, or the continuing threat of al-Qaeda and other terrorist groups, all regional threats.

These common challenges must be met through the force of coalitions of common interests, which include Israel and other allies in the region. A common thread woven into the Middle East fabric is that the most enduring and effective solutions to the challenges facing the region are political, not military. America's role in the Middle East is to continue to help influence and shape the course of events, using diplomatic, economic, humanitarian, intelligence, and security tools in coordination with all of our allies.

### **Iranian Perceptions**

In contrast, Iran's policymakers and planners see the US as *the* major threat to Iran and claim to see it as the most significant threat – followed by Israel – and see their major strategic objectives as countering or removing the US presence in the Gulf, expanding Iran's influence in the Gulf and throughout the region, and deterring and challenging Israel.

While their private views are probably more nuanced and focus on regime survival and expanding Iran's regional presence and influence, Iran's strategic rhetoric uses the “threat” posed by the US and Israel to justify a military buildup that is also directed at increasing its influence over its Arab neighbors and the region. Key Iranian officers and leaders have described their military competition with the US as follows:

- "The Islamic Republic enjoys such a position in the world that no country thinks of aggression against it since Iran's combatants have multiplied the Islamic Iran's power by their presence in different arenas," Sayyari said on Saturday. "It is true that the enemy has become disappointed at waging (conventional) war against us and has, thus, resorted to the highly dangerous method of soft war, but this doesn't mean that we overlook readiness for (conventional, physical) war even for one moment," he added.<sup>43</sup>
- A senior Iranian commander lauded the eye-catching and growing preparedness of the country's Armed Forces, and underlined that this growing trend must be continued to keep Iran's deterrence power at the highest level possible. The Iranian Army's Deputy Top Liaison, General Mohammad Hossein Dadras, underlined that both Iran and its enemies are well aware that the development of defensive products in the country has brought “real security” to the Islamic Republic, urging the Iranian experts to do their best for boosting country' deterrence power.<sup>44</sup>
- Navy Commander Rear Admiral Habibollah Sayyari dismissed Israel's growing war rhetoric against Iran as insignificant, and said the Zionist regime has no power compared to Iran's might and capabilities. "They count for nothing to do any harm to us and they have no power," Sayyari told reporters in Tehran on Sunday.<sup>45</sup>
- [...] IRGC Navy Commander Rear Admiral Ali Fadavi underlined Iran's high defensive capabilities and power, and said the newly developed 'Khalij-e Fars (Persian Gulf)' missile would make the enemies change their equations and calculations due to its unusual and unique features. "The Khalij-e Fars missile has been developed somehow different from the usual trend and can change the equations on which the enemy most relies," Fadavi said at the time.<sup>46</sup>
- "When the enemy observes that our Armed Forces are constantly in war-game zones and their fingers are kept on the trigger, it will not dare to invade the Islamic Iran's borders," -Commander of the Iranian Army Ground Force General Ahmad Reza Pourdastan.<sup>47</sup>
- Rear Admiral Ali Fadavi, Commander of the Iranian Revolutionary Guards Corps Navy said, “Today all possibilities and equipment of the Americans in the sea are under threat by us, but we have never been after pressuring and annoying (them)...but no one can guarantee that our self-restraint will continue forever... We have no doubt that the enemy is determined to halt the growing trend of the Islamic Revolution... We have

reached the conclusion that the enemies will eventually take hostile actions, which is not beyond (our) expectation.”<sup>48</sup>

- Lieutenant Commander of the IRGC Navy General Alireza Tangsiri said, “We...have reached a level of power and capability after the (Iraqi) imposed war (on Iran) that has prevented any new adventurism by the enemy in the Persian Gulf region...Due to our powerful presence in the sea and the achievements some of which have been displayed to the enemy, the speed boats in the Persian Gulf and the Strait of Hormuz have become a nightmare for regional and global ill-wishers.”<sup>49</sup>
- Rear Admiral Ali Fadavi, Commander of the Iranian Revolutionary Guards Corps Navy said, “We have built the necessary defensive and security infrastructure in the Persian Gulf region and are fully aware of enemies’ strategic weak points. We have not ignored them in our calculations...We have managed to set up good infrastructure to maintain security and stability in the Persian Gulf region with the efforts of our colleagues in different sections of the IRGCN.”<sup>50</sup>
- Brigadier General Massoud Jazayeri, Deputy Chief of Staff of the Iranian Armed Forces for Cultural Affairs and Defense Publicity said, “The era of threat, intimidation and the childish game of carrot and stick has come to an end, and if materialistic regimes and the hegemonic powers do not have a proper understanding of the current situation in the world and region, they will be faced with numerous and unforeseeable problems...Mr. Obama, make no mistake. All our options are also on the table. Return to your country before getting more bogged down in the region’s quagmire.”<sup>51</sup>
- According to the head of Iran’s Passive Defense Organization, Gholam Reza Jalali, “We will stage cyber maneuvers next week in five or six major zones to test cyber infrastructures.... NATO member states and European Union countries are among those who have held cyber exercises, but it will be our first such maneuver.”<sup>52</sup>
- “The enemy believes it will succeed by imposing sanctions and pressures (on Iran), but does not know that our nation has weathered worse situations over the past thirty years and will also strongly deal with the current situation,” said Major General Ataollah Salehi.<sup>53</sup>
- Former Politburo Chief of the IRGC, General Yadollah Javani, when addressing IRGC naval forces in Bandar Abbas said that the West is upset with Iran, because the Islamic Republic “has broken the monopoly of the US and a number of Western countries over the world management system, and the world’s command centers...Today, the Westerners feel that Iran, through its new achievements, developments and advancements, has turned into a strategic rival that can change the structure of the world’s command center and become a member of it.”<sup>54</sup>
- Rear Admiral Ali Fadavi, Commander of the Islamic Revolution Guards Corps Naval Force (IRGCN) said that the IRGC has already been able to enhance its missile-firing vessels such that they can operate at a speed two times faster than US naval vessels. Fadavi said that if the enemies carry out an act of stupidity and wage another war in the region, Iranian armed forces “will give them such a firm and crushing response that they will not have the time to regret their action...We do not like to see the coffins of thousands of American soldiers streaming from the Persian Gulf to the United States, but if the enemy makes a stupid move...this response will be only part of the outlook of our future battle with the United States.”<sup>55</sup>
- Head of the Organization of Research and Self-Sufficiency Jihad of the Iranian Army Ground Force General Seyed Massoud Zawarehei, said that. “They (Americans) are completely aware of the fact that their (attack) choppers are vulnerable, and for that reason they have protected some sensitive parts and some layers of these choppers. This, however, is not true for the body of these choppers. We, too, have focused on their weak points... All in all, choppers are surely vulnerable and cannot be coated by a layer of steel.” Zawarehei’s remarks came several days after Iran unveiled the Shaheer 14.5 mm sniper rifle. The rifle is capable of targeting and destroying concrete strongholds, armored vehicles and choppers.<sup>56</sup>
- “Incorrect understanding of the regional situation and developments by certain countries and the US as well as the incorrect and manipulative interference in regional affairs are two main factors behind instability and insecurity in the Persian Gulf region.” Foreign Ministry Spokesman Ramin Mehman-Parast.<sup>57</sup>

- On IMCMEX 12, the US mine-countermeasure drill: “They want to claim through these war games that they can stand against the Islamic Republic of Iran, but they should know that they are the source of insecurity in the region...Americans’ activities are under our (IRGC Navy) constant watch any moment,”

Rear Admiral Ali Fadavi, Commander of the Islamic Revolution Guard Corps Navy, September 21, 2012.

“Today the US threats and war games are nothing new or serious and they have become normal to us.” Brigadier General Abdul-Rahim Moussavi, Lieutenant Commander of the Army, September 21, 2012.

“We are well aware of the exact number and the position of the US surface vessels, aircrafts, submarines and minesweeping warships in the region.” Rear Admiral Habibollah, Iranian Navy Commander, September 21, 2012.<sup>58</sup>

- “Iran is the greatest maintainer and protector of security in the Persian Gulf. Iran has seen so many similar stances of the US and Washington’s decisions, moves and war games have no impact on the Islamic Republic of Iran,” said Rear Admiral Habibollah Sayyari, Navy Commander.<sup>59</sup>
- “The sworn enemies of Islam and the Islamic Revolution have been united to take the opportunity of elections and try to counter the ideals of the Islamic establishment. We should remain vigilant to thwart the enemies’ plots.”- Heidar Moslehi, Iranian Intelligence Minister.<sup>60</sup>
- “We do not want war, but if a problem arises one day and His Holiness gives a signal, many people are ready to execute his orders...Israel has no easy sleep because of fearing Hezbollah.”-Mohammad Mohammadi Golpayegani, the head of Supreme Leader Ali Khamenei’s Office.<sup>61</sup>
- “Should the enemies desire to use the method and spirit of threats, we will naturally also threaten them. The (military) exercise by the armed forces of the Islamic Republic of Iran’s Islamic Revolution, in fact, expresses the will to act against various types of threats that are targeting our national security.”- Hossein Salami, Revolutionary Guards Deputy, February 7, 2012. <sup>62</sup>
- “The Hamian-e Velayat [Supporters of Guardianship] war game is a response to the strong statements of the Supreme Leader at the Friday prayer and his strategy to counter regional and extra regional threats. The war game displayed the latest offensive and defensive doctrine of the Revolutionary Guards Ground Forces deploying 33<sup>rd</sup> Al-Mahdi airborne brigade.” - Hossein Salami, Revolutionary Guards Deputy, February 7, 2012. <sup>63</sup>
- “Syria’s President Bashar al-Assad should be allowed some time to carry out his pledged reforms as the Syrian leader has taken considerable steps so far in this regard.” - Iranian Foreign Minister Ali Akbar Salehi.<sup>64</sup>
- “Tens of radar and missile systems with various ranges have been manufactured and deployed in Iran’s defense sector so far and new systems are on their way to join the defense network during the 10-Day Dawn celebrations, which began on February 1 to mark the 33th anniversary of the victory of the Islamic Revolution in Iran. Iran’s scientific and technological progresses, which have irked the arrogant powers, come in the face of US-led sanctions.” - Farzad Esmayeeli, Commander of Khatam ol-Anbia Air Defense Base Brigadier General.<sup>65</sup>
- “[T]he recent statements made by the US and the West about the Strait of Hormuz show that they are frightened by the awe of the (Islamic) Revolution, otherwise the Iranian nation considers the Strait of Hormuz as the strait of peace. However, the Iranian nation is determined to cut the hand of those who seek adventurism in the Persian Gulf, the Sea of Oman and the Strait of Hormuz.” – Ali Larijani, Speaker of Iranian Parliament, February 1, 2012.<sup>66</sup>
- “Tehran will not remain indifferent to US mischief in the region if Washington tries to cause problems for regional countries. The Strait of Hormuz is a region of peace and Iran has protected its peace for centuries and will continue to do so in order to maintain calm in it,”-Ali Larijani, Speaker of Iranian Parliament, January 31, 2012.<sup>67</sup>
- “There are some geographic, historical, and social differences between the Muslim nations and there is no unitary role model for all Islamic countries. What is important is that they oppose the satanic Zionist and American dominance and don’t tolerate the existence of the cancerous tumor of Israel...” -Ayatollah Ali Khamenei, Supreme Leader of Iran.<sup>68</sup>

- “Wherever there is an activity and plan beneficial to Israel and the United States, we must be vigilant and should consider that an alien [movement] contrary to the interests of the nations. Wherever there is an Islamic, anti-Zionist, anti-imperialist, anti-corruption movement, all Muslims will share the same opinion to approve and strengthen it...” -Ayatollah Ali Khamenei, Supreme Leader of Iran.<sup>69</sup>
- “The US has given a role to Saudi Arabia, Qatar and Turkey to direct the regional developments in a way that they move towards these countries’ interests in line with the US policies and opposite to Iran’s policies. Owing to the fact that Iran’s Islamic Revolution serves as a role model for the regional and world nations in their fight against the tyranny of their rulers and arrogant powers, the US and its allies are attempting to prevent Tehran’s further political influence in the region.” - Major General Yahya Rahim Safavi, Senior Military Aide to the Supreme Leader.<sup>70</sup>
- “New home-made satellite carrier rockets, smart ammunition, aeronautic products, as well as new electronic and telecommunication devices will be unveiled. The laser system used in the munitions is able to track and identify targets and locate and assess their distance. The new munitions are suitable to target static and mobile targets with high precision strike.” - Brigadier General Ahmad Vahidi, Iranian Defense Minister.<sup>71</sup>
- “[The] enemies are trying to make up for the damages they have sustained due to popular uprisings in Egypt, Tunisia, Libya and other Islamic countries... The enemies are busy with designing plots and conspiracies, and Islamic nations—especially the youths of the Muslim Ummah (community) who are the engine of the Islamic Awakening—should not allow the global network of tyranny to hijack their revolutions....” - Ayatollah Ali Khamenei, Supreme Leader of Iran, January 30, 2012.<sup>72</sup> “The U.N.’s chief nuclear inspector arrived in Iran on Sunday on a mission to clear up “outstanding substantive issues” on Tehran’s atomic program, and called for dialogue with the Islamic state. We have always had a broad and close cooperation with the agency and we have always maintained transparency as one of our principles working with the agency.” -Iranian Foreign Minister Ali Akbar<sup>73</sup>
- “An oil war with Iran will force Europe into its knees since Iran will not allow export of a single drop of oil. The Islamic Republic of Iran has the third largest oil reserves in the world and certainly cannot be excluded from the energy equation. Iranian Parliament seeks approval for a plan to stop oil exports to the European Union, a move that would paralyze Italy, Spain, and Greece.” -Seyed Emad Hosseini, Spokesman for Majlis Energy Commission, January 26, 2012.<sup>74</sup>
- “Losing the European oil market will have an impact on Iran’s economy which needs rational planning by the authorities. Selling oil at sub-market level prices is not a good way to counter the oil embargo.” - Mehdi Hosseini, former Oil Ministry international deputy, January 26, 2012.<sup>75</sup>
- “The United States did not dare to direct its aircraft carrier through the Strait of Hormuz alone; this is why the carrier was “escorted” by military vessels of other nations. If the Strait is closed, the aircraft carriers will become the war booty of Iran.” - Javad Karimi Qodousi, parliamentary National Security Committee member, January 24, 2012.<sup>76</sup>
- “We are fundamentally against interfering in the affairs of other countries. We think it does not solve the problems but will only make them more complicated. The good reforms which have been announced by Syrian officials are pushing the ambience towards dialogue and solving the problems, though some countries do not like this.” - Iranian Foreign Ministry Spokesman Ramin Mehman-Parast, January 23, 2012.<sup>77</sup>
- “This assassination [of Ahmadi-Roshan] shows the misery, desperation, and despicability of the enemies of Islam and the revolution. They claim to fight against terrorism, but are themselves the leader of terrorists and produce terrorists. This scandal and indecency of theirs knows no limit since they also talk about human rights... We saw that following this assassination there were 300 applicants to change their academic majors into studies related to nuclear energy. Following the martyrdom of one Ahmadi-Roshan, 300 other Ahmadi-Roshans grew... This assassination leads to increased resistance...” - Ayatollah Ahmad Jannati, temporary Tehran Friday prayer leader.<sup>78</sup>
- “There is no decision to block and close the Strait of Hormuz unless Iran is threatened seriously and somebody wants to tighten the noose. All the options are on the table.” - Mohammad Khazaei, Iranian Ambassador to the United Nations, January 19, 2012.<sup>79</sup>

- “The US is not in a position to affect Iran’s decisions. Iran does not ask permission to implement its own defensive strategies.” -Brigadier General Hossein Salami, Iranian Lieutenant Commander of the Islamic Revolution Guards Corps (IRGC), January 17, 2012.<sup>80</sup>
- “Our capability to provide security in the region, specially the Strait of Hormuz during sensitive times, will not experience any change due to the western warships’ trafficking in the region.” - Gholam Reza Karami, Iranian lawmaker and Chairman of the Parliamentary Defense Committee, January 16, 2012.<sup>81</sup>
- “Today the Islamic Republic of Iran has full domination over the region and controls all movements within it.” - Navy Rear Admiral Ali Fadavi, Commander of Iran’s Islamic Revolution Guards Corps (IRGC), January 6, 2012.<sup>82</sup>
- “Iran has total control over the strategic waterway. Closing the Strait of Hormuz is very easy for Iranian naval forces.” -Rear Admiral Habibollah Sayyari, Iran’s naval commander, December 28, 2011.<sup>83</sup>
- “If they impose sanctions on Iran’s oil exports, then even one drop of oil cannot flow from the Strait of Hormuz.” - Mohammad-Reza Rahimi, Iran’s first vice president, December 27, 2011.<sup>84</sup>
- “Closure of the Strait of Hormuz is not on the Islamic Republic of Iran’s agenda (at present), but if threats against Iran come to trample upon the rights of our nation while others use the strait for exporting their oil, then Iran will be entitled to the right to close the Strait of Hormuz. The international conventions reserve such rights for the Islamic Republic of Iran as well. For the time being, the Islamic Republic of Iran has not decided to close the strait, but this (closing the strait) depends on the conditions of the region.” - Mohammad Taqi Rahbar, Iranian lawmaker, December 19, 2011.<sup>85</sup>
- “According to the international laws, including Paragraph 4 of Article 14 of the Geneva Convention, in case Iranian oil is sanctioned, we will not allow even a single barrel of oil to pass through to reach the hostile countries.” -Isa Jafari, Senior Iranian lawmaker, December 18, 2011.<sup>86</sup>
- “Iran’s military strategy is defensive in nature, while our tactics are offensive.” – Brigadier General Hossein Salami, Lieutenant Commander of the IRGC, June 28, 2011.
- “The hegemonic system and its regional supporters should know that as they could not isolate or weaken the Iranian nation and could not trample upon the Iranian nation’s rights through their supports for (former Iraqi dictator) Saddam Hussein and the Baath party, they will not succeed in ignoring the inalienable rights of the Iranians through continuing their threat, sanctions and Iranophobia strategy and through their resort to lies and deceitful measures, use of an arrogant language, hegemony and bullying behavior.” – Major General Gholam Ali Rashid, Deputy Head of the General Staff of Iran’s Armed Forces
- “When we study history we reach the absolute conclusion that the only nation that is fit for passing through the last curve leading to the promised point is the pious and revolutionary, dear Iranian nation; a nation that with its Islamic Revolution started this great historic mission.” – Iranian President Mahmoud Ahmadinejad, May 5, 2011.
- “The new and young generation of the IRGC should be growingly higher and stronger (than the older generation) in knowledge, informedness, insight, dedication, correct and prompt accomplishment of tasks and duties, because although there is no military war happening today, a more delicate and of course more dangerous war is underway.” – Iranian Supreme Leader Khamenei, July 4, 2011.
- “It is the warmongering and interventionist American leaders who try to harm good relations between the countries of the region by designing false matters and creating divisions.” – Ahmad Vahidi, Iranian Minister of Defense, December 13, 2010.
- “The US’ Iran ‘scenario’ is intended to create an excuse for its illegitimate presence and the sale of weapons in the region.” – Ahmad Vahidi, Iranian Minister of Defense, December 13, 2010.
- “With the arrival of the British and later the Americans in the region, plots were hatched to try and change the name with fake identities... to distort the history and identity of the Persian Gulf.” – Major General Hassan Firouzabadi, Chief of Staff of Iran’s armed forces, April 30, 2011.

- “Whenever there is a problem, they [US] take out their guns.” – Iranian President Mahmoud Ahmadinejad, April 11, 2010.
- “As the Commander-in-Chief (Ayatollah Seyed Ali Khamenei) has emphasized, our fingers should be kept on the trigger for deterrence.” – Lieutenant Commander of the IRGC Ground Forces, General Abolqassem Foroutan, July 13, 2011.
- “We must exploit the chaotic situation and accelerate the arming of the resistance groups in Palestine. Groups like HAMAS and Islamic Jihad should be armed with high-quality, modern weapons from Iranian production. In order to purposefully exert influence on the next Egyptian Government, we must support Shi’ite forces in the region and establish an anti-American axis.” – A report provided to Supreme Leader Khamenei by the Iranian National Council, April 20, 2011.
- “The (PJGCC) should not put the blame for the ongoing developments in Bahrain on Iran. The Islamic Republic seeks peace in the region. Iran’s policy on Arab countries in the Persian Gulf has not changed and we still believe in good relations with these states. The Islamic Republic of Iran is the most influential country in the region which tightens regional security and has played a valuable role in defusing crisis and establishing security.” – Alaeddin Boroujerdi, head of the National Security and Foreign Policy Commission of the Iranian Parliament, April 17, 2011.
- “The Persian Gulf has always, is and shall always belong to Iran.” – Major General Hassan Firouzabadi, Chief of Staff of Iran’s armed forces, April 30, 2011.
- “Iranian forces are in complete control of the Strait of Hormuz and the Sea of Oman.” – Rear Admiral Ali Fadavi, commander of the IRGC navy, December 10, 2010.<sup>87</sup>

These Iranian statements and others like them, are often obvious propaganda but they still do much to reveal the range of perceptions of Iranian leaders and military officers. They also reflect Iran’s view that it is a major Gulf power, a natural regional leader, and a state with a special historical and religious mission and justification for its actions. Moreover, they show that Iran sees the US and the US’s regional alliance structure as the principal threat to what Iran’s leaders and officers perceive is Iran’s right to emerge as the Gulf’s dominant state.

Many of these statements also track with Iranian military exercises and force developments that focus on Iran’s belief that the US’s military presence in the Gulf is hostile and unacceptable. Iran’s focus on asymmetric doctrine in its military strategy illuminates what the country perceives as the primary threat to its regional influence and national security: the US 5<sup>th</sup> fleet and US military bases in the Gulf. Iran’s response to the overwhelming American traditional power in the region has been to develop a range of asymmetric assets that focus on unconventionally targeting superior US forces while avoiding formal combat, and establishing the ability to close the Gulf in ways that would disrupt international petroleum shipments. Iran’s support for proxies and attempts to build its public image also underline this strategy, giving it the chance to press key states to cease hosting US bases.

Iran’s ballistic missile arsenal provides another indication of its threat perceptions and ambitions, and also constitutes another dimension of Iran’s asymmetric response to the US’s presence in the region. Iranian military officials often boast openly of the country’s ability to strike at Israel and US bases in the Gulf with a variety of missiles.

For example, the IRGC announced in February 2011 that it had developed an anti-ship ballistic missile, the *Khalij Fars* (“Persian Gulf”), which it claimed was capable of destroying US warships

and commercial vessels.<sup>88</sup> This announcement, and others like it, provides an indication of Iran's threat perceptions and strategic priorities. Iran's focus on systems designed to counter superior US conventional forces is indicative that it perceives American – and other – foreign military power in the Gulf as an unacceptable threat to its national security, regime survival, and regional ambitions. As Iran has shaped its asymmetric assets, ballistic missile arsenal, and nuclear program as a deterrent to the US conventional advantage in the Gulf, it is clear that the American presence in the region is Iran's principle concern.

Iran's treatment of the Arab Gulf states and other Arab neighbors has been less consistent. While Iran's perception of the US is often openly negative and confrontational, Iran's security approach to its Gulf neighbors was more nuanced following the end of the Iran-Iraq War in 1988 through roughly 2010. Iran often used friendly rhetoric that invoked notions of Islamic brotherhood and regional solidarity. Yet, even when Iranian officials made conciliatory statements regarding their Gulf neighbors, they often did not refer to them as equals. For example, the Iranian Defense Minister was quoted as stating in September 2010 that:

“There is no reason for regional countries to fear our weapons and military equipment... We have announced that whatever we have belongs to all regional nations, and we are even ready to supply... [Iranian-made weapons] to these countries.”<sup>89</sup>

Such statements reveal both Iran's regional aspirations and perceptions of its Gulf neighbors. Iranian offers to share arms and military technology with neighboring countries have been a combination of political gestures, attempts to play a leadership role in the region, and attempts to provide a counterweight or regional alternative to US patronage. Regardless of its rhetoric at any given time, Iran has perceived its neighbors as competitors or inferiors, not partners. Rather than finding issues of common interest or expanding cooperation, Iran has sought to pressure them to support Iranian interests. This mutual antagonism and unwillingness to accommodate their interests has been reinforced by the fact that Iran is a revolutionary Shi'ite state, while most of its neighbors are status-quo oriented Sunni-dominated monarchies that have close ties to the US.

Iran's stance towards its neighbors has steadily hardened in recent years. For example, the Chief of Staff of Iran's armed forces – Major General Hassan Firouzabadi – articulated this perception clearly when referencing the GCC's intervention in Bahrain's 2011 unrest in a speech in April of 2011, Iran's “National Day of the Persian Gulf:”

“The Arab dictatorial regimes in the Persian Gulf are unable to contain the popular uprisings. Instead of trying and failing to open an unworkable front against Iran, these dictators should relinquish power, end their savage crimes and let the people determine their own future.”<sup>90</sup>

By the end of 2011, Iran had reached the point where it was talking about closing the Gulf and was making more direct threats against the US and the GCC states that supported Washington. Iran soon added military exercises to these threats as both continued through the summer and fall of 2012.

### **Arab and Turkish Perceptions**

As **Figure 2** shows, every aspect of US and Iranian military competition involves a wide range of other players. In general, this competition favors Washington because of US ties to the Southern Gulf states, Turkey, other Arab states, and Israel. The Southern Gulf states have become critical strategies allies and partners for the US. So have other regional states like Jordan and Turkey and European powers like Britain and France.



The Southern Gulf states, most of the rest of the Arab world, Israel, and a number of other regional powers like Jordan perceive Iran as a current or potential threat. These perceptions differ by country in terms of risk, priority, and probability, evolving with changes in Iran's behavior, military forces, and nuclear capabilities.<sup>91</sup>

There are further differences within given countries between the perceptions of leaders and national security elites and the perceptions of the public and media. Many Arab countries and Turkey have their own versions of hawks and doves in the way they view Iran as a potential threat. Such internal debates do, however, have to be kept in perspective. While the current political upheavals in the Arab world may change past alignments, it is the perceptions of national intelligence services, military planners, and top-level decision makers that usually shape national policy. These constituencies generally see Iran as a threat and the US as an ally.

At the same time, these upheavals have led some Arab and other regional states to take a more independent role with respect to Iran. For example, Egypt's former president Mohamed Morsi had sought to partner with Iran to resolve the Syrian civil war. While criticizing Iran for providing arms and training for al-Assad, President Morsi aimed to establish a quartet – with Egypt, Iran, Saudi Arabia, and Turkey – to provide a regional solution to the crisis. Such an approach would have been anathema under President Mubarak, providing Iran a formal, legitimate role in Syria – albeit subject to Egypt's imprimatur. This situation has been reversed by the military takeover by General Abdul Fatah al-Sisi that deposed President Morsi on July 3, 2013, but it indicates that Arab states can ease or reverse their positions, and Iran is actively seeking to expand its influence in Iraq, Syria Lebanon, and Yemen,

In the past, Arab leaders have been cautious about publicly referring to Iran as a threat, even though they have generally acknowledged it in private ever since Khomeini consolidated power following the fall of the Shah. Many Gulf leaders, military officials, and intelligence experts – as Wikileaks' release of various diplomatic cables makes clear – now view Iran as a steadily growing concern. Gulf leaders not only view Iran's nuclear and missile capabilities as a danger to their existence in spite of the P5+1 and Iranian agreement, they are even more sensitive to the asymmetric threats that Iran poses to their territory, petroleum exports, freedom of maneuver, and regime survival.

These concerns became far more public in the course of 2011 and 2012. American and Gulf leaders, military officials, and intelligence experts came to share a common concern over Iran's growing ability to use specialized asymmetric units like the Al Quds Force as well as key elements of the IRGC. Arab concerns have been reinforced by events in Bahrain, and many in the Gulf feel that Iran has supported the Houthi rebels in Yemen and is seeking dominant influence in Iraq. Iranian actions regarding Syria have caused even greater concern among Arab leaders, with the sense that Tehran has gone from simply backing regimes to actively supporting one side in an Arab civil war, leading to grave worries about its willingness to back future armed movements.

The US revelation of a plot to assassinate the Saudi ambassador to the US linked to Iran's Al Quds Force in October of 2011 has made such concerns even more serious. This raises problems for every Arab Gulf state with a sizeable Shi'ite population, as well as increases the risk of broader tension and clashes between Shi'ites and Sunnis throughout the Muslim world. On a personal level, it changes the rules of engagement in the Iranian-Gulf cold peace, undermining the taboo on targeting public figures on either side.

This has led to a loss of Arab public support or sympathy for Iran as well. Although Iran often still polls better than the US and Israel<sup>92</sup> – rendering it difficult for Arab leaders to publicly side with

the US in any confrontation – polling by Zogby shows Iran’s favorable rating at 22% in the UAE and 6% in Saudi Arabia, a decrease of 35 and 60 percentage points since 2007, respectively.<sup>93</sup> Iran’s relatively low standing gives the Gulf states’ leadership additional flexibility in cooperating with the US and in confronting Iran, enlarging the range of joint future diplomatic and military operations.

This has led the Arab Gulf states to make major new arms orders, step up their military cooperation, and exercises with the US, and sharply tighten the aspects of their internal security operations directed towards Iran and any Shi’ite minorities. Turkey – which also plays a critical role in dealing with Iran, Syria, and Iraq – is still careful to avoid direct confrontation with Iran. It does, however, maintain major military forces in eastern Turkey, has sought to play a growing role in seeking to stabilize Iraq, has agreed to host part of a ballistic missile defense network with NATO, and has obtained the deployment of NATO Patriot systems to defend against spillover from the Syrian revolution, in spite of Iranian protests. Turkey is playing a critical role in seeking political reform and change in Syria – actions which have led to Iranian government protests and which would limit Iran’s military links to Syria and Lebanon – and possibly Iranian influence in Iraq.

As for Iran, it has created an informal military alliance with the Assad regime in Syria and the Hezbollah in Lebanon, has provided funds and arms to Hamas and the PIJ in Gaza, and is actively competing for military influence in Iraq. It has provided some support and encouragement to dissident Shi’ite groups in Bahrain, Kuwait, Saudi Arabia, and Yemen. This makes Iraq a critical wild card in the military competition in the Gulf, an uncertainty further compounded by the civil war in Syria, Iran’s efforts to use its supporters in Iraq and Lebanon, and the tensions that affect other actors outside the Gulf Region.

### **The Impact of the “War of Sanctions”**

As has been touched upon earlier, American, European, Gulf, Turkish, Israeli, Russian, Chinese, and other national threat perceptions cannot be decoupled from the “war of sanctions” between Iran and the US and Iran’s diplomatic offensive in the UN – and throughout the world – to block sanctions and win acceptance for its declared nuclear program.

This struggle is described in detail in a later chapter, and includes Iran’s efforts to use energy and other investment opportunities to win influence over India, China, and Russia, as well as obtain imports of advanced arms from Beijing and Moscow. It does, however, affect the military balance to the extent it has led Iran to take a far stronger political stand regarding its military capabilities, threaten to close the Gulf. The Iranian reaction is both defensive and offensive and may well have led to increase the role of the Al Quds Forces, MOIS, and other Iranian efforts to support Shi’ite dissidents in the Arabian Peninsula, the Assad regime in Syria, and the Hezbollah, Hamas, and PIJ.

It has also led Iran to publically announce a growing list of military exercises clearly designed to threaten and intimidate the US and Southern Gulf states. Iran has also announced a long series of new weapons and tactics, some with multiple names. Some of these developments are very real, but Iranian politico-military rhetoric makes it difficult to assess such statements - particularly regarding new or upgraded Iranian weapons platforms. Some names crop up across several platforms (i.e. the Bavar spy plane and missile). Weapons systems are announced as entering production multiple times (most notably the various Shahab-3 variants) or that have not gone

beyond the prototype level. Other weapons performance claims are grossly exaggerated or praise tests that are actually failures.

*Figure 2: Assessing the Full Range of Iranian Competition and Threats*

### **Non-Military Competition**

- *Ideology, religion, and political systems*
- *“Terrorism” and violent extremism vs. “counterterrorism”*
- *Energy, sanctions, and global economic impacts*
- *Arms control, arms exports, and arms imports*
- *International diplomacy*

### **Military Competition**

- *Weapons of mass destruction*
- *Conventional forces*
- *Asymmetric and irregular warfare*
- *Proxy use of state and non-state actors*
- *Threat and intimidation*

### **Nations and Sub-Regions of Competition**

- *Gulf Cooperation Council countries*
- *Yemen*
- *Iraq*
- *Jordan*
- *Syria-Lebanon*
- *Israel*
- *Gaza and West Bank*
- *Morocco*
- *Pakistan*
- *Turkey*
- *Afghanistan*
- *Central Asia*
- *Europe*
- *Russia*
- *China*
- *Japan and East Asia*
- *Venezuela, Cuba, Ecuador, and Bolivia*
- *Brazil and Argentina*
- *Sudan*
- *Nigeria*
- *Smaller Sub-Saharan African states*

## ***Key Uncertainties in Assessing the Details of US and Iranian Military Competition***

There are a wide range of data that provide useful insights into the details of US and Iranian military competition and the role of Arab states and Israel, but it is important to keep unclassified sources in perspective.

Estimates and perceptions of the quantitative strength of Iran's conventional and asymmetric warfare forces often seem broadly accurate, but this level of confidence only affects estimates of force size and key manpower and equipment numbers. Iran's intentions in building up such forces are far from clear, as are its real world plans and tactics for using them.

Iran often uses hardline rhetoric in threatening the use of such forces or describing their exercises, but this may be little more than a deterrent or threatening propaganda. The real use may often be defensive or design to deter, and, and some such rhetoric almost certainly reflects internal Iranian politics. Much of the unclassified reporting on Iran's national security and military chains of command, the military roles of given forces prior to and during wartime, Iran's war plans, internal politics of Iran's security forces, the role of the Supreme Leader, and President, the role of various senior advisors in the key decision making processes are largely speculative and uncertain

Other Iranian activity, like the use of its Al Quds Force, Revolutionary Guards, and intelligence branches in aiding non-state actors or conducting operations in countries like Iraq, is covert and even harder to assess. The US and Saudi Arabia, for example, do not agree on the level of Iranian support for the Houthi rebels.

There are disagreements on the level of Iranian covert activity in supporting dissidents in Bahrain, and experts diverge on some of the details of the role of the Al Quds Force, VEVAK, and other clandestine Iranian action for Sadrist militias and hardline Shi'ite splinter groups, as well as covert "spoiler" support of AQIM. Gulf and Israeli policymakers are also somewhat more concerned of the risk of a "Shi'ite crescent" including Iran, Iraq, Syria, and Lebanon than their US and European counterparts.

### ***Competition in Conventional Military Forces***

The data on the forces on each side are clearest in the counts of conventional forces and major weapons systems. So is the overall balance of military power. The close ties between the US military and the forces of the Southern Gulf states – a de facto system of alliances that makes the US a key player in the Gulf military balance at every level – creates a system of basing options and interoperability that allows US units to rapidly reinforce both the US forces already in the Southern Gulf states and any Southern Gulf state that Iran should threaten or attack.

The end result is that the competition in conventional forces favors the US and its regional friends and allies, although – as is discussed in more detail in a later chapter – Iraq's lack of major conventional weapons, geographic vulnerabilities, and current internal security struggles makes it a notable exception. The US and Arab Gulf states not only have larger and far more modern conventional forces, but there is little prospect that Iran can begin to catch up in the near and mid-term. It should be noted, however, that it is far harder for the US to exploit this advantage if Iran can present the threat of nuclear escalation or a nuclear crisis, or if Iran's total mix of conventional and asymmetric forces are taken into consideration.

## The Role of the US in the Gulf Conventional Balance

It should be stressed that such counts cover total forces and are not scenario specific. There is no way to estimate exactly what mix of forces the US would deploy in any given contingency, or how rapidly the balance would change because of US deployments from outside the Gulf region. There also is no way to predict the level of cooperation between the Gulf states or their exact level of cooperation with the US in any given case. **Figure 3** does, however, draw upon work by the US Senate Foreign Relations Committee to provide a summary of how US forces, advisory efforts, and arms transfers interact with the military forces of each Gulf state, and to sets the stage for a comparison of Gulf country forces.

### *Figure 3: The US Military Role in the Gulf in 2012*

#### **Bahrain**

**Bahraini Military:** Bahrain retains the smallest military force in the GCC at approximately 8,200 active duty troops, many of whom are apparently noncitizens from South Asia. The Bahraini force employs a small fleet of American-made F-5s and F-16s; an American-made frigate; a number of coastal patrol vessels and amphibious landing craft; transport and attack helicopters; and two batteries of air defense missiles. Twice, in 2008 and 2010, the Bahraini military assumed command of Combined Task Force-152 and in 2009, they deployed 100 police officers on a 2-year rotation to Afghanistan—the only other GCC country besides the UAE to make such a commitment. Bahrain has also deployed its American-built frigate in support of US operations in the Gulf. However, the Kingdom remains dependent on the United States and its GCC allies for external – and, as 2011 proved, internal – security. Bahraini forces leverage US expertise during joint exercises such as Neon Response, a November 2011 bilateral engagement that facilitated explosive ordnance and disposal training. Bahrain is cautious when it comes to Iran, alleging that Iran and Lebanese Hezbollah continue to support anti-government opposition groups. Bahrain has sentenced Iranians and Bahrainis to prison for spying on behalf of the IRGC.

**US Military Presence:** The United States security relationship with Bahrain dates back to 1948, with the establishment of the Middle East Force, a precursor to today's Fifth Fleet. The US Navy leased part of the former British base in 1971, when Bahrain achieved formal independence. During the Gulf War, Bahrain was home to 17,500 US troops and 250 aircraft. Bahrain signed a defense agreement with the United States in 1991, which still provides US forces extensive access to military facilities; permission to store munitions, and establishes the groundwork for joint military training and exercises. By 1995, the US Fifth Fleet and US Naval Forces Central Command, operating from their headquarters in Bahrain, were managing the Navy's rotationally deployed assets to the Gulf.

Naval facilities in Bahrain, renamed Naval Support Activity, now span 60 acres and house roughly 6,000 military personnel and civilian employees. The Kingdom's ports regularly host US-ported carrier and amphibious battle groups and are the enduring home to US Navy assets such as minesweepers and costal patrol boats. The US facilities also provide bases for American air superiority and naval surveillance aircraft, and will eventually have the ability to host special operations forces. The United States has made a significant investment in military facilities, commencing a 5-year \$580 million US-funded construction project in 2010. Additionally, Bahrain is the base of international coalitions Combined Task Forces 151 and 152—partnerships dedicated to counter-piracy and maritime security cooperation.

**US Security Assistance and Training:** The largest beneficiary of US grant security assistance among the GCC States, Bahrain is slated to receive approximately \$500,000 in Nonproliferation, Anti-terrorism, Demining, and Related assistance (NADR); \$700,000 in International Military Education and Training (IMET); and \$10 million in Foreign Military Financing (FMF) in fiscal year 2012. Bahrain agreed to purchase close to \$91 million in US defense equipment and training through Foreign Military Sales in fiscal year 2010, and in fiscal year 2011, it was granted US Excess Defense Articles (EDA) worth more than \$55 million. The US has sold short-range and hand-held air defense systems; lack of Bahraini funds has prevented America from selling an integrated air defense network, leaving Bahrain outside the advanced SAM system being developed in the Gulf.

Training has also been a significant component of US security assistance to Bahrain. In fiscal year 2010, 253 students were trained in competencies such as maritime security, leadership, maintenance, and counterterrorism at a value of \$2.8 million. Since 2000, US military sales to Bahrain have totaled \$1.4 billion, including training and surplus

equipment. US arms deals since 2011 have encountered domestic opposition, stemming from allegations regarding the Bahraini military's behavior during its crackdown during the Arab Spring.

## **Kuwait**

**Kuwaiti Military:** The Kuwaiti military has taken the lessons of 1990 to heart, making great strides toward modernizing its force. It improved substantially in missile defense, regularly competing against US-manned Patriot batteries in training simulations, and has developed a professional officer corps and improved all-around readiness. However, the small combined Army, Navy, and Air Force – close to 15,500 active duty troops – still relies on US assistance in sustainment, logistics, maintenance, and intelligence fusion, and is only capable of deterring its larger neighbors through its US alliance. To improve its capabilities, the Kuwaiti military is a willing recipient of US training. In the words of one US military officer, “their appetite for partnership exceeds our ability to provide it.” Kuwait has also increasingly demonstrated a willingness to participate in international coalitions. In 2012, ahead of their regularly scheduled rotation, Kuwait assumed the lead of Combined Task Force-152; a 25-nation coalition dedicated to maritime security operations in the Gulf. Even though Kuwait and Iran recently upgraded diplomatic relations to the ambassadorial level, a high degree of mistrust remains due to several high-profile cases of espionage linked to the IRGC and MOIS.

**US Military Presence:** A US-Kuwaiti defense agreement signed in 1991 and extended in 2001 provides a framework that guards the legal rights of American troops and promotes military cooperation. When US troops departed Iraq at the end of 2011, Kuwait welcomed a more enduring American footprint. Currently, there are approximately 15,000 US forces in Kuwait, but the number is likely to decrease to 13,500. Kuwaiti bases such as Camp Arifjan, Ali Al Salem Air Field, and Camp Buehring offer the United States major staging hubs, training ranges, and logistical support for regional operations. US forces also operate Patriot missile batteries in Kuwait, which are vital to theater missile defense.

**US Security Assistance and Training:** Kuwait has procured major weapon systems from the United States including M1A2 tanks, Patriot air-defense missile systems, and F/A-18 fighter aircraft. In fiscal year 2010, Kuwait agreed to purchase \$1.6 billion of defense articles and services through the Foreign Military Sales program, with an additional \$4.7 billion arms sales notified to Congress in 2011 and 2012. Kuwait is not a recipient of US grant assistance such as International Military Education and Training (IMET). However, through the Foreign Military Sales program in fiscal year 2010, 216 Kuwaiti military students were educated in proficiencies from intelligence to pilot training at a value of \$9.7 million. Moreover, the Kuwaiti Government often uses its national funds to send officials to attend professional military schools and short-term training courses in the United States.

## **Oman**

**Omani Military:** Numbering approximately 43,000, the Omani military is the third-largest among GCC states. Although it has not experienced live combat recently, it remains an effective force, with particularly strong airlift and sealift capabilities. With its historical ties to the British, much of the Omani military inventory comes from the United Kingdom. However, Oman's forces are increasingly looking for American equipment and training. For example, in 2012, US Army forces teamed with the Royal Army of Oman during a 2-week training exercise – Inferno Creek – that focused on infantry tactics at the squadron and platoon level. Oman remains the Gulf state with the strongest ties to Iran, using its friendly relations to help secure the release of imprisoned American hikers and staging a joint exercise with Iran in 2011. While it has an agreement with Iran to cooperate in joint military exercises, Oman remains closely tied to the US as a bulwark against regional instability.

**US Military Presence:** Oman formalized defense ties with the United States – the first Gulf country to do so – after the 1979 Iranian Revolution. It was from the Omani air base on Masirah Island in 1980 that the Carter administration staged a failed attempt to rescue American hostages held in Iran. During the 1980s Iran-Iraq War, US forces used Omani installations as a base for maritime patrol and tanker support. In the early stages of Operation Enduring Freedom in Afghanistan, over 4,000 American troops and critical equipment, including a B-1 bomber aircraft, were positioned in Oman. A 2010 security agreement permits the United States to retain a small military footprint and grants US forces access, with advanced notice and for specialized purposes, to military facilities in Masirah, Muscat, and Thumrait, as well as allowing the US to pre-stage munitions at these facilities. Starting in 2011, the US has begun shifting its forces to a fourth air base at Musnanah, which would allow it to reduce its public footprint in Oman. In

addition to the US presence, there is a British force at Goat Island (Jazirat al-Ghanam) at the tip of Oman's Gulf Peninsula. This base provides a local coordination and information-gathering center close to the shipping route.

**US Security Assistance and Training:** Oman, unlike most of its Gulf partners, is a recipient of US grant security assistance, albeit at modest levels. In fiscal year 2012, the US committed approximately \$1.5 million in Non-Proliferation, Anti-Terrorism, Demining, and Related (NADR) funds, \$1.65 million in International Military Education and Training (IMET) assistance, and approximately \$8 million in Foreign Military Financing (FMF) to Oman. FMF money has primarily gone towards counter-narcotics, counter-smuggling, and other coastal surveillance equipment, while it has obtained some 30 tanks through an Excess Defense Articles (EDA) grant.

Compared to its GCC counterparts, Oman has historically procured fewer US weapons systems. In fiscal year 2010, Oman agreed to purchase \$13.9 million in defense articles and services through the Foreign Military Sales program. However, a number of larger potential transfers were notified to Congress in 2010 and 2011 with a more significant price tag and a more robust support and training package. These agreements include missile components of a ground-based integrated air defense system along with air-to-air missiles totaling \$1.3 billion. A new acquisition of F-16 fighter aircraft along with associated weapons systems at a cost of \$3.5 billion will begin arriving in Oman in early 2014.

The Sultanate's forces are regular participants in US training evolutions. The Royal Air Force of Oman hosts exercises with the US Navy and Air Force, and there is a possibility the Omanis will participate in advanced airborne combat exercises held in the United States. In fiscal year 2010, 291 Omani military students were trained through US security cooperation programs in intelligence, leadership, logistics, procurement, maritime security, and counter-terrorism at a value of \$2.8 million.

## Qatar

**Qatari Military:** Qatar maintains a small but professional military force. With 12,400 active duty troops, it retains the second smallest active duty military in the GCC. Qatar lacks an integrated air defense system, and with a small fleet of aging coastal combatants and fighter aircraft it relies on American capabilities for its self-defense. Although its officers are well regarded, a military career is not highly sought after by Qatari youth. In an attempt to make military service more attractive, the officer corps recently received a pay increase of 120 percent. Qatar has demonstrated a willingness to operate in the coalition environment.

After natural disasters in Haiti and Pakistan, Qatar was among the first to deploy humanitarian supplies aboard its American-made C-17s. Its weapons are often out of date (with the exception of fighter aircraft and missile forces), limiting its ability to integrate into a broader Gulf defense force, and recently it has focused more on training and developing bases than acquiring new equipment. In addition to supplying \$400 million to arm and train the Libyan resistance, Qatar provided Special Forces to lead the rebels in their August 2011 assault on Tripoli. Although Qatari fighter jets played a nominal part in air operations over Libya, one US military official described Qatar's overall political and military contribution to the Libya effort as "nothing short of decisive." Qatar has taken a neutral approach when it comes to Iran, offering on occasion to serve as an intermediary between Iran and the United States.

**US Military Presence:** In the aftermath of the liberation of Kuwait in 1991, Qatar granted US forces substantial access to its military facilities. The following year, the two countries solidified their defense relationship by signing a cooperation agreement. Qatar invested \$1 billion in the 1990s to expand Al Udeid Air Base. Now, with its 15,000-foot runway and considerable store of war reserve material, it is a critical logistical hub for regional operations. Although Qatar subsidizes much of the American presence, the United States has also invested in Qatar's security infrastructure. From 2003 to 2010, Congress authorized over \$394 million for military construction projects. Home to approximately 7,500 American troops, Qatar is the forward deployed base of the US Central Command and the Combined Air and Space Operations Center (CAOC). At the CAOC, US military officials manage airspace authority, air defense, electronic warfare, and personnel recovery in 20 regional countries, including Afghanistan.

**US Security Assistance and Training:** Qatar has traditionally relied on the French for its military equipment, but as the relationship with the United States develops, it is increasingly willing to procure American-made weapons including fighter aircraft and missile defense systems. In fiscal year 2010, Qatar agreed to purchase \$16.8 million in US defense goods through the Foreign Military Sales program. In 2011 and 2012, Congress was notified that Qatar planned to buy an additional \$6 billion worth of helicopters and heliborne weaponry. Sensitive to what they perceive as costly administration fees, Qatar has been more inclined to acquire military equipment through the Direct



Commercial Sales program although, with improved bilateral government-to-government relations, there are indications that this trend may be changing.

In fiscal year 2010, Qatar educated 205 students through US military training programs, 35 percent of whom participated in programs through Foreign Military Sales at a value of \$5.8 million. Qatar also spent a significant amount of its national funds to provide US training for students in skills from operational planning to leadership.

## **Saudi Arabia**

***Saudi Military:*** The Saudi military is by far the largest within the GCC, numbering approximately 224,500 active-duty troops. The Saudi Arabian National Guard is a separate military force and a pillar of the regime, recruited predominantly from tribes loyal to the royal family and numbering over 100,000 members. Since the fall of Saddam, the Saudi military is the Gulf region's strongest geo-political counterweight to Iran, though the Kingdom has not historically sought to project conventional military force outside the Arabian Peninsula. Despite employing some of the most advanced equipment in the region—Patriot missile defense batteries, Typhoon and F-15SA fighter aircraft, airborne refueling capability, M1A2 Abrams tanks, and AH-64 attack helicopters—the Saudi military continues to face challenges developing proficiency in defense planning and sustainment. In particular, while the armed forces are well deployed and equipped for territorial defense, they are poorly configured for overseas operations. The air force concentrates on fighter aircraft and anti-air missile capabilities, the navy is dominated by coastal craft, and the army is primarily emplaced to protect the periphery; there is neither the capacity nor training experience for expeditions. Saudi Arabia has been Iran's greatest rival in the region since the 1979 Islamic Revolution. Their competition has often been tense, strained by the close U.S.-Saudi relationship and a steady stream of Iran-sponsored terrorist attacks such as the Khobar Towers bombing in 1996.

***US Military Presence:*** Although the United States maintained a troop presence in Saudi Arabia prior to the Gulf War, the deployment reached its zenith in 1991, with over 550,000 coalition forces mobilized in support of operations in Iraq. From 1992–2003, US forces continued to maintain a residual footprint in Saudi Arabia, but in August 1996, Osama bin Laden declared war against the United States in the Kingdom. Subsequently, US forces were victims of significant terrorist attacks.

Sensitive to perceptions of an overt American military presence in “the Land of the Two Holy Mosques,” US personnel and combat equipment were withdrawn from Saudi soil by the end of 2003. Now security cooperation is facilitated by a relatively small contingent of US military officers and contractors who work with the Saudi Ministry of Defense, Ministry of Interior, and the Saudi Arabian National Guard.

***US Security Assistance and Training:*** Despite the sometimes strained relationship, Saudi Arabia remains a major recipient of US security assistance. In fiscal year 2010, Saudi Arabia agreed to over \$2 billion in US Foreign Military Sales and \$409 million in Foreign Military Construction Agreements. From 2007 to 2010, Saudi Arabia agreed to purchase \$13.8 billion in US defense articles and services—more than any other nation in the world. These acquisitions included some of the most technologically advanced weapon systems available for export. In 2010, the Obama administration announced the potential sales of UH-60 Blackhawk and AH-64 Apache helicopters.

In December 2011, the administration announced that it had agreed to a foreign military sale with Saudi Arabia consisting of 84 F-15SA fighter aircraft, upgrades to its existing fleet of 70 F-15s, and a significant air-to-air and air-to-ground ordnance package. The sale, worth \$29 billion, is the largest to a single recipient in the history of the United States. Although Congress did not block the sale, 198 Members wrote the administration in November 2010 to express concern over how the transfer of such sophisticated arms would impact the regional security balance. This transaction was supplemented by a further \$30 billion sale of other aviation equipment for the Saudi Air Force, Land Forces, and National Guard, upgrading their aviation technology to that currently in use by the United States.

In fiscal year 2010, 1,571 Saudi students were trained at a value of \$69.5 million in such competencies as maintenance, English language, communications, logistics, financial management, and intelligence through US security cooperation programs.

Ninety-four percent of the students were trained through the Foreign Military Sales programs. In past years, the Saudi Air Force has also participated in joint training such as Red Flag—a massive air combat exercise—at Nellis Air Force Base in Nevada. Saudi Arabia has at times received a nominal amount of International Military Education and Training (IMET) assistance, typically \$10,000 or less, so that it can qualify for reduced pricing on US training associated with Foreign Military Sales.

A May 2008 US-Saudi technical cooperation agreement laid the groundwork for collaboration on critical infrastructure protection and border and maritime security. The agreement facilitated the Saudi's purchase of US technical support through government contractors or US private entities. The US Central Command has also reportedly worked with Saudi Special Forces to improve their ability to protect oil infrastructure and future energy sites.

## UAE

**Emirati Military:** With approximately 65,400 active duty troops, the UAE's military is a relatively small but capable force. Compared to other major GCC countries their Air Force is considered one of the best equipped in the region. The UAE, which has NATO observer status, dedicated two squadrons comprised of six F-16s and six Mirage aircraft to operations in Libya.<sup>94</sup> Perhaps showing a lack of combat experience The UAE also retains a 250-troop contingent in Afghanistan dedicated to security, humanitarian aid, and development.

It possesses both Patriot-3 and Terminal High-Altitude Air Defense (THAAD) weapons systems, giving it the most advanced missiles coverage of any state in the Gulf. Despite a number of recent setbacks and a strained US-Afghanistan relationship, the UAE is poised to assume additional responsibilities in support of coalition efforts. Iran and the United Arab Emirates have enjoyed strong commercial relations and the Iranian population in the UAE is one of the largest in the Middle East. Nevertheless, they have differed at times over Iran's support of Shia minorities in Bahrain, Iran's nuclear program, and their longstanding dispute over control of three islands in the Gulf – the Greater and Lesser Tunbs and Abu Musa.

**US Military Presence:** The UAE first turned to the United States as a guarantor of security during the 1991 Gulf War with Iraq. In 1994, the UAE signed a bilateral defense pact with the United States that outlined a status of forces agreement and laid the groundwork for increased defense cooperation.

The relationship has since flourished, with the UAE's installations now home to a sizable US footprint of almost 3,000 troops. The Emirates directly support much of the American presence by subsidizing facilities expansion and upgrades. More US Navy ships visit the port at Jebel Ali, which can handle vessels up to the size of nuclear carriers, than any other port outside the United States, and Al Dhafra Air Base retains US fighter, attack, and reconnaissance aircraft. Like a number of other GCC States, the UAE also hosts US Patriot missile batteries, and its airfields were upgraded in the early 2000s to support US operations in Iraq.

**US Security Assistance and Training:** The UAE is a major recipient of US defense equipment, having purchased in recent years F-16 fighter jets, Apache attack helicopters, Patriot and Terminal High Altitude Area Defense (THAAD) missile systems, and a bevy of advanced munitions. From 2007 to 2010, the UAE agreed to acquire more US defense articles and services through the Foreign Military Sales program—\$10.4 billion—than any other country in the world with the exception of Saudi Arabia. In the fall of 2013 congress was notified of the proposed sale of \$4 billion worth of weaponry, including “5000 GBU-39B Small diameter Bombs (SDB) with BRU-61 carriage systems, 8 SDB Guided Test Vehicles for aircraft integration, 16 SDB Captive Flight and Load Build trainers, and 12000 AGM-145C Joint Stand Off Weapon (JSOW).”<sup>95</sup> If completed these purchases would provide the UAE Air Force with increased weapons capabilities on their pre-existing F-16 platforms.

The purchase of US weapons systems also contributes to the training of Emirati military students. In fiscal year 2010, 359 students were trained at a cost of \$19.3 million through US security cooperation programs—96 percent of whom received their training as part of the Foreign Military Sales program.

At the Air Warfare Center in Al Dhafra, the UAE and US forces conduct extensive training exercises focused on command and control, early warning, air and missile defense, intelligence, and logistics. Biannually, the UAE hosts an advanced aviation seminar in offensive and defensive tactics, which includes two weeks of academics and four weeks of flying. There are 7 participating nations, 42 fighter aircraft platforms, and 3 helicopter types, facilitated by US and French refueling, command, communications, and control assets. Graduates of the course include Qatari, Emirati, and Jordanian pilots.

The UAE is also host to the Integrated Air Missile Defense Center, which facilitates US-UAE interoperability and US-GCC integration. The United States and GCC militaries train on advanced tactics against ballistic missile, cruise missile, and airborne threats. In October 2011, for the first time, the GCC states participated in Falcon Shield, an integrated missile defense exercise with the United States.

The UAE has also hosted the Eagle Resolve multilateral exercise, which utilizes state of the art laboratory facilities to train participants in chemical, biological, and radiological defense and border security. The head of Central Command, General James Mattis said, “Eagle Resolve will allow us to operate together as a team—it brings the US forces an opportunity to learn from our Gulf partners and they from us in this regard, practicing how we will protect the region’s populations if threatened.”<sup>96</sup>

### **The Impact of Britain and France**

The US partnership with the Southern Gulf states, Egypt and Jordan, and potentially Turkey is the critical aspect of the partnerships that shape regional military capabilities to deal with deterring, containing, and defending against Iran. The Southern Gulf or Gulf Cooperation Council (GCC) states are critical parts of the regional military balance, as well as supply key facilities and support to the United States.

Britain and France are now the only European powers that can project significant power against Iran aside from Turkey. Britain and France also provide important basing capabilities in Diego Garcia and Djibouti, respectively, and have a forward military presence in the region. Although other states can provide important assets in selected areas like mine warfare, Britain and France have critical assets across the board. While NATO may talk about out of area operations, it cannot play a major role as a direct military command, and its other 25 members seem far less likely to become involved in any crisis or conflict. This trend is likely to continue as additional fiscal constraints lead other NATO states to further shrink their militaries.

It should be noted, however, that Germany plays a critical diplomatic role in the efforts to force Iran to give up its nuclear weapons programs and the sanctions the EU began to enforce in 2012 have had a critical importance in putting pressure on Iran. Europe does play a broad role in security efforts in the Gulf and one where diplomacy may prove to be as important as military capability.

### **The Impact of Israel**

As later chapters discuss in detail, Israel sees its military competition with Iran from a different perspective. Many Israelis see Iran as an emerging “existential” threat because of Iran’s long-range missiles and nuclear program. Israelis have a more narrow view of Iran as an asymmetric threat, and focus on Iranian actions like supporting Hezbollah in Lebanon and arming Hamas in Gaza. This fear stems in large part due to belligerent statements by Iranian leadership, including Ahmadinejad’s remark about “removing the Israeli regime from the page of time”<sup>97</sup> and IRGC Aerospace Commander General Hajizadeh stating that “our long-range target is Israel. Our long-range missiles have a range of 2,000 km and are sufficient for the defense of the country. We have no technology problems in this sector, but we have not felt the need to build missiles with longer ranges.”<sup>98</sup>

While Israel does have its own version of hawks and doves, nearly all Israelis believe that Iran should be prevented from acquiring nuclear weapons, and many feel that such prevention is so important that it could justify Israeli or US military strikes on Iran. Israeli officials and officers see missile defense as a key option and there is almost no public discussion of any kind of the role that Israel’s undeclared nuclear forces will play in deterring or potentially striking Iran (nor is there any discussion of the role Israel’s nuclear program has on perceptions within Iran or public opinion in the region).

In contrast, US, European, Gulf, and Turkish threat perceptions focus more on the broader range of Iranian threats outlined in **Figure 2**. These perceptions include the threats posed by Iran’s ties

to Syria, closer relations with Turkey, its role in Afghanistan, and its influence on Gulf commercial shipping. Arab states like Egypt and Jordan have expressed their concern over the potential threat posed by Iran's relations with Syria and the creation of a "Shi'ite crescent" that includes Lebanon and could come to include Iraq.

### **Trends in Military Spending and Arms Transfers**

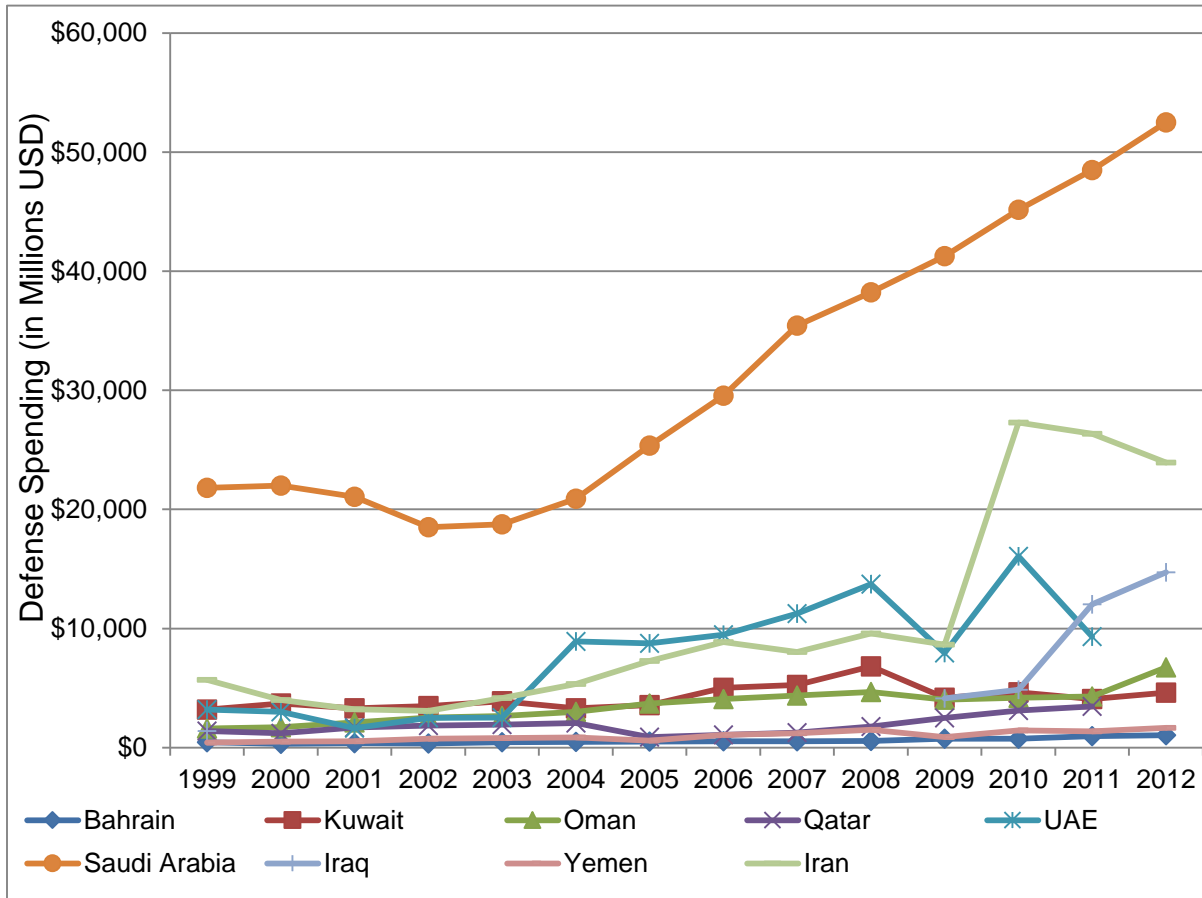
Comparisons of military spending and arms transfers provide a broad indication of the size of conventional military efforts. In the case of Iran and the Gulf, these indicators show the balance favors the US and its allies, and make it clear that comments stating that Iran is the military hegemon of the Gulf are analytically absurd exaggerations.

**Figures 4 and 5** show that Iran has been unable to compete in total military spending and importing advanced modern arms on the scale required to shift the balance. In spite of constant propaganda claims to the contrary, Iran has as yet been unable to create national defense industries that can produce the range of systems required.

- **Figure 4** provides a four part comparison of total military spending and the more limited total budget, and shows the size of US FMS aid. Its various parts show that Iran has steadily increased its military spending over the last decade, but still spends only about one-seventh the total of the Southern Gulf states.<sup>99</sup>
- **Figure 5** shows that the US alone signed \$64.5 billion worth of new arms agreements with the Southern Gulf states during 2008-2011, and that they signed a total of more than \$75.6 billion worth of agreements. Iran signed only \$300 million worth of new orders.<sup>100</sup>
- **Figure 5** also shows that Southern Gulf states took delivery on \$9.4 billion worth of new arms from the US during the last half decade (2008-2011), and that they took delivery on a total of more than \$15.9 billion. Iran took delivery on only \$200 million.<sup>101</sup>

**Figure 6**, while now somewhat dated, also shows how important US arms transfers to the Gulf States have long been in shaping US security policy both in the region and relative to other areas of the world.

**Figure 4: Comparative Spending on Military Forces- Part One:  
Total Military Spending By Country**

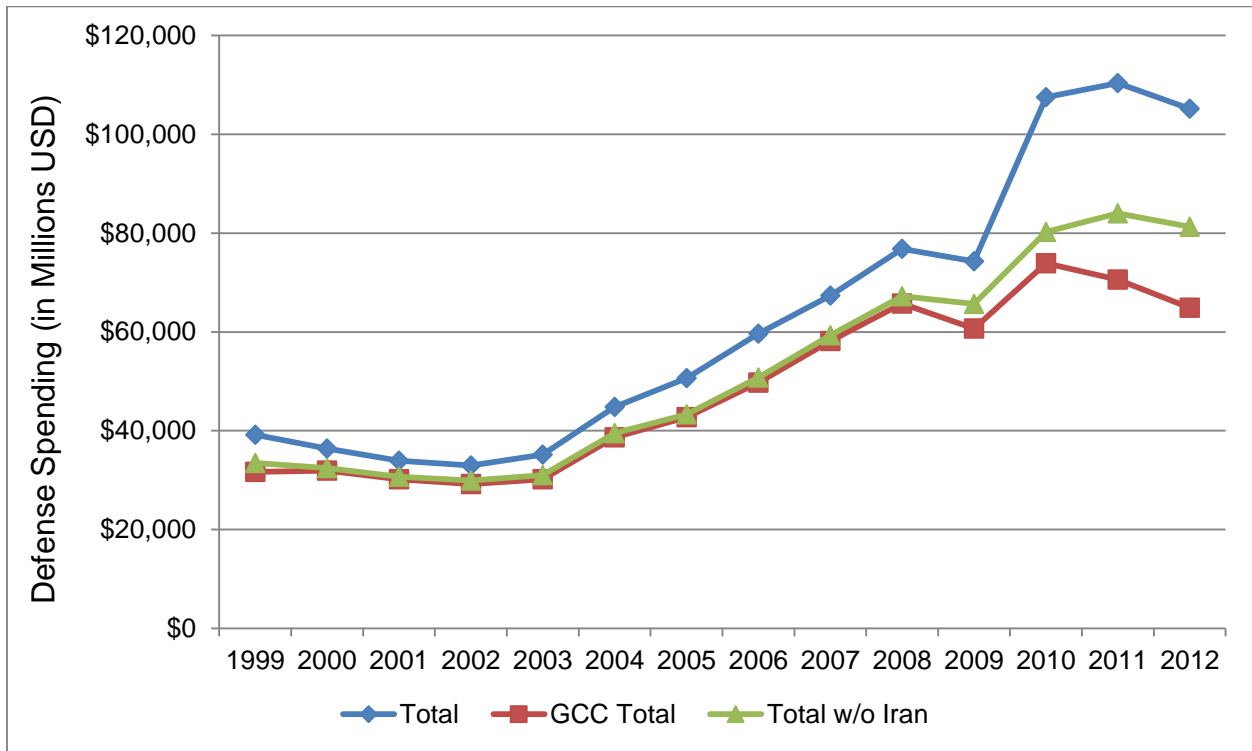


Year	Bahrain	Kuwait	Oman	Qatar	UAE	Saudi Arabia	Iraq	Yemen	Iran
1999	\$441	\$3,200	\$1,600	\$1,400	\$3,200	\$21,800	\$1,400	\$429	\$5,700
2000	\$322	\$3,700	\$1,700	\$1,200	\$3,000	\$22,000	-	\$498	\$4,000
2001	\$371	\$3,286	\$2,107	\$1,690	\$1,642	\$21,055	-	\$542	\$3,218
2002	\$331	\$3,477	\$2,518	\$1,855	\$2,490	\$18,501	-	\$740	\$3,076
2003	\$460	\$3,881	\$2,655	\$1,923	\$2,519	\$18,747	-	\$809	\$4,150
2004	\$473	\$3,284	\$3,008	\$2,060	\$8,910	\$20,910	-	\$842	\$5,328
2005	\$500	\$3,568	\$3,695	\$888	\$8,747	\$25,372	-	\$584	\$7,275
2006	\$532	\$5,024	\$4,076	\$1,072	\$9,482	\$29,541	-	\$1,066	\$8,864
2007	\$539	\$5,250	\$4,376	\$1,266	\$11,253	\$35,446	-	\$1,211	\$8,040
2008	\$553	\$6,812	\$4,671	\$1,756	\$13,733	\$38,223	-	\$1,492	\$9,595
2009	\$742	\$4,184	\$4,018	\$2,500	\$7,957	\$41,276	\$4,118	\$883	\$8,636
2010	\$736	\$4,654	\$4,189	\$3,117	\$16,057	\$45,170	\$4,848	\$1,452	\$27,283
2011	\$959	\$4,070	\$4,304	\$3,457	\$9,320	\$48,500	\$12,028	\$1,363	\$26,359
2012	\$1,028	\$4,616	\$6,731	\$3,670	\$12,700	\$52,510	\$14,727	\$1,654	\$23,932

Source: Adapted from the IISS, Military Balance, 1999-2013

**Figure 4: Comparative Spending on Military Forces- Part Two:  
Total Gulf and GCC Military Spending**

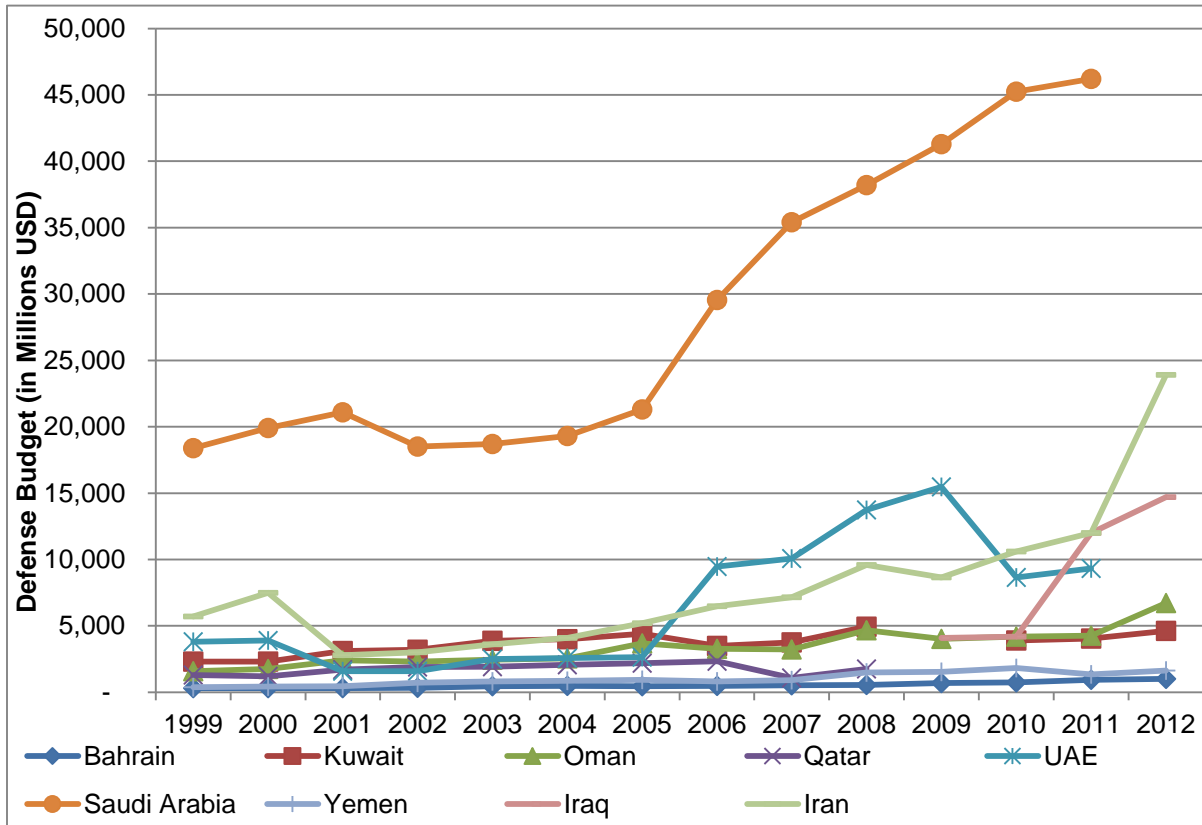
Totals



Year	Total	GCC Total	Total w/o Iran
1999	\$39,170	\$31,641	\$33,470
2000	\$36,420	\$31,922	\$32,420
2001	\$33,911	\$30,151	\$30,693
2002	\$32,988	\$29,172	\$29,912
2003	\$35,144	\$30,185	\$30,994
2004	\$44,815	\$38,645	\$39,487
2005	\$50,629	\$42,770	\$43,354
2006	\$59,657	\$49,727	\$50,793
2007	\$67,381	\$58,130	\$59,341
2008	\$76,835	\$65,748	\$67,240
2009	\$74,314	\$60,677	\$65,678
2010	\$107,506	\$73,923	\$80,223
2011	\$110,360	\$70,610	\$84,001
2012	\$105,198	\$81,225	\$81,266

Source: Adapted from the IISS, Military Balance, 1999-2013

**Figure 4: Comparative Spending on Military Forces- Part Three:  
Comparative Defense Budgets by Country**

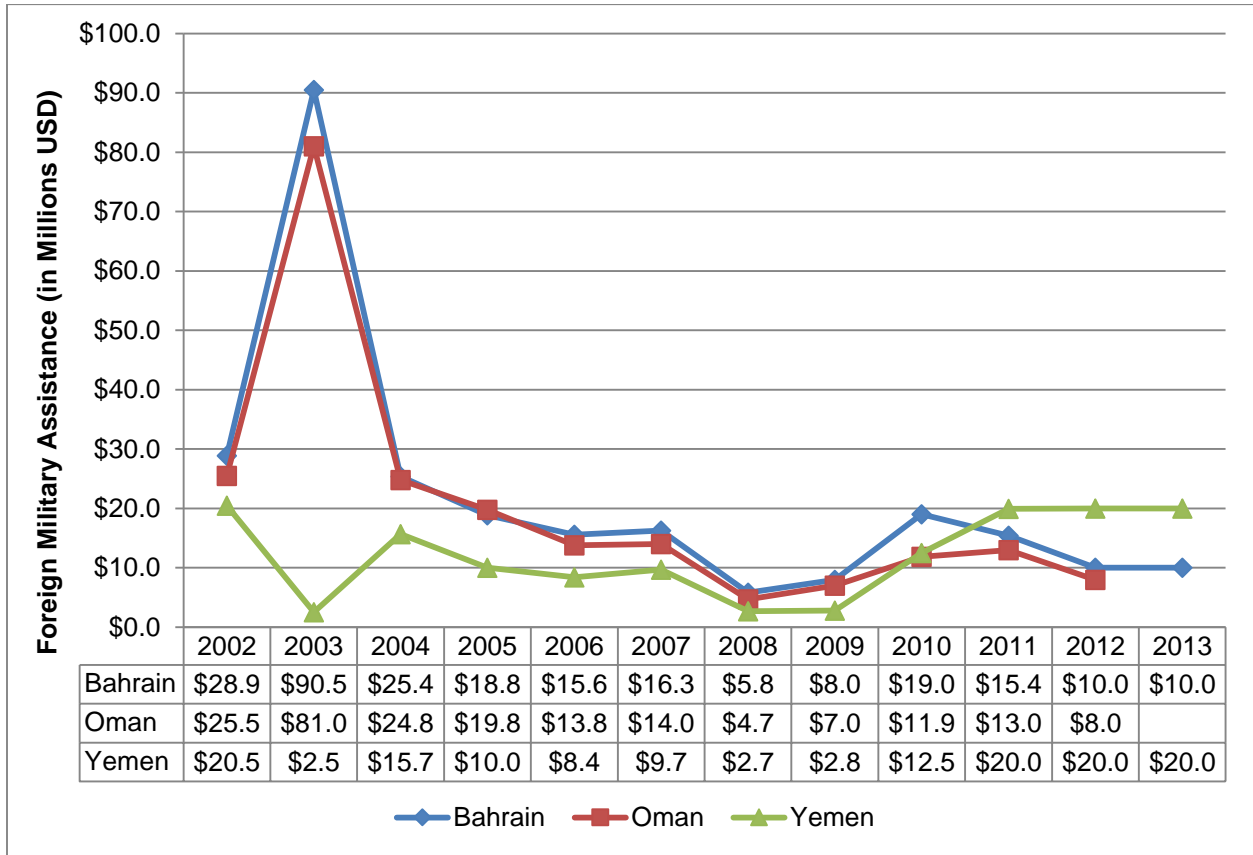


Year	Bahrain	Kuwait	Oman	Qatar	UAE	Saudi Arabia	Yemen	Iraq	Iran
1999	306	2,300	1,600	1,300	3,800	18,400	374		5,700
2000	315	2,300	1,750	1,200	3,900	19,900	435		7,500
2001	315	3,100	2,400	1,700	1,600	21,100	460		2,800
2002	331	3,200	2,300	1,900	1,600	18,500	731		3,000
2003	460	3,880	2,460	1,920	2,510	18,700	809		3,610
2004	473	3,990	2,560	2,060	2,580	19,300	869		4,100
2005	463	4,400	3,690	2,190	2,650	21,300	942		5,200
2006	478	3,490	3,270	2,330	9,480	29,540	823		6,480
2007	539	3,750	3,230	1,090	10,080	35,400	908		7,160
2008	552	4,930	4,670	1,750	13,730	38,200	1,490		9,590
2009	705		4,020	2,380	15,470	41,300	1,550	4,100	8,640
2010	747	3,910	4,180	3,427	8,650	45,240	1,830	4,190	10,600
2011	943	4,050	4,270	3,750	9,320	46,200	1,340	12,000	12,000
2012	1,020	4,620	6,720	3,890	12,700	49,000	1,630	14,700	23,900

Source: Adapted from the IISS, Military Balance, 1999-2013

Note: In February 2012, some budget items for IRGC construction and social-security spending were reclassified to fall under the military budget. Discounting this spending, as it is not military related, the IISS estimates Iranian defense spending declining by 10.3% in real terms from 2011 to 2012 due to high levels of inflation.

**Figure 4: Comparative Spending on Military Forces- Part Four: US Foreign Military Assistance**



Source: Adapted from the IISS, Military Balance, 1999-2013



**Figure 5: Comparative Spending on Arms Transfers****Arms Agreements (in Current \$US Millions) 2008-2011**

Recipient Country	U.S.	Russia	China	Major West European <sup>a</sup>	All Other European	All Others	Total
<b>2008-2011</b>							
Algeria	0	2,100	200	800	100	0	3,200
Bahrain	400	0	0	0	0	0	400
Egypt	7,400	500	600	100	300	0	8,900
Iran	0	100	0	0	100	100	300
Iraq	4,800	300	0	500	900	200	6,700
Israel	5,900	0	0	0	0	0	5,900
Jordan	1,500	0	0	0	100	0	1,600
Kuwait	2,500	700	0	0	0	0	3,200
Lebanon	300	0	0	0	0	200	500
Libya	0	100	0	700	200	0	1,000
Morocco	2,700	0	500	1,000	900	0	5,100
Oman	1,500	0	0	200	0	0	1,700
Qatar	200	0	0	800	0	0	1,000
Saudi Arabia	45,600	0	0	5,300	1,100	100	52,100
Syria	0	1,700	200	0	0	100	2,000
Tunisia	100	0	0	0	0	0	100
U.A.E.	14,300	100	0	1,600	1,100	100	17,200
Yemen	0	100	0	0	300	100	500

**Arms Deliveries (in Current \$US Millions)**

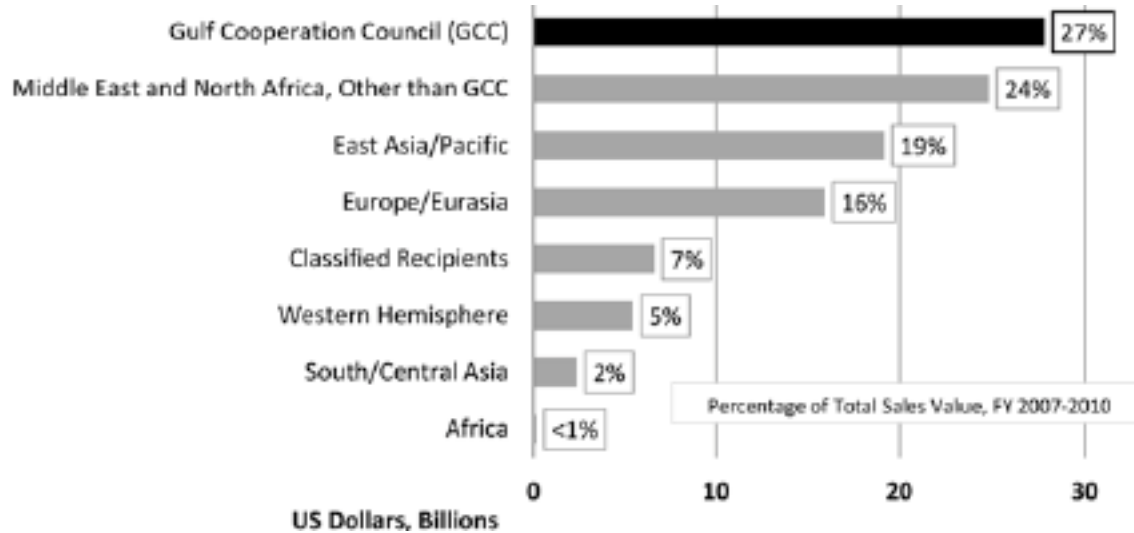
Recipient Country	U.S.	Russia	China	Major West European <sup>a</sup>	All Other European	All Others	Total
<b>2004-2007</b>							
Algeria	0	900	200	0	0	0	1,100
Bahrain	200	0	0	100	0	0	300
Egypt	5,700	300	400	0	400	0	6,800
Iran	0	500	200	0	0	200	900
Iraq	200	100	0	100	300	100	800
Israel	5,700	100	0	0	0	0	5,800
Jordan	600	100	0	0	0	0	700
Kuwait	1,500	0	0	0	0	0	1,500
Lebanon	0	0	0	0	0	0	0
Libya	0	200	0	0	200	0	400
Morocco	100	100	0	0	0	100	300
Oman	700	0	0	300	0	0	1,000
Qatar	0	0	0	0	0	0	0
Saudi Arabia	4,300	0	200	9,900	100	100	14,600
Syria	0	500	300	0	0	300	1,100
Tunisia	0	0	0	0	0	0	0
U.A.E.	600	200	0	4,000	400	0	5,200
Yemen	0	400	0	0	100	100	600

\*\* 0 = Data less than \$50 million or nil. All data rounded to the nearest \$100 million.

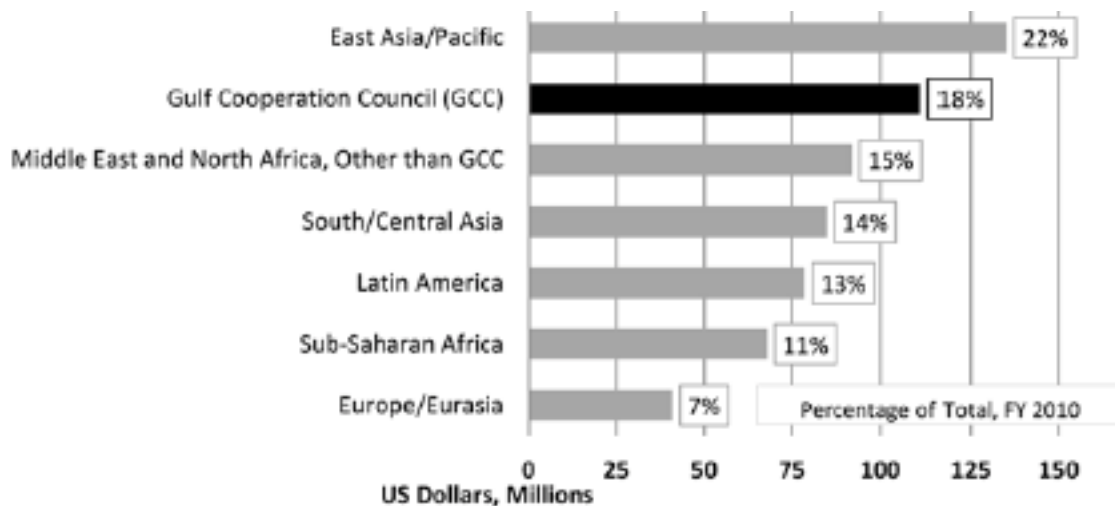
Source: Adapted from Richard F. Grimmett and Paul K. Kerr, *Conventional Arms Transfers to the Developing Nations, 2004-2011*, Congressional Research Service, R42678, August 24, 2012 pp. 44, and 58.

**Figure 6: The Role of US Arms Transfers and Military Education as a Percentage of US Global Efforts**

US Foreign Military Sales Agreements by Region: FY 2007-FY2010\*



Funding for US Foreign Military Education and training by Region: 2010 \*\*



\* Data come from Defense Security Cooperation Agency 2010 Report on Foreign Military Sales, Foreign Military Construction Sales and Other Security Cooperation Historical Facts With the exception of the “GCC” grouping, which is drawn out of the “Middle East and North Africa,” the regional categories are equivalent to those used by the US State Department.

\*\*Data come from 2010–2011 Report on Foreign Military Training and Department of Defense Engagement Activities of Interest

Source: This table is excerpted and adapted from a Majority Staff Report of the Senate Foreign relations Committee, *The Gulf Security Architecture: Partnership with the Gulf Cooperation Council*, June 19, 2012

## **The Air-Sea War and the Limits to Iran's Air Power**

Air and sea power are the keys to conventional combat in the Gulf region and any conventional, large-scale US/Southern Gulf engagement with Iran. Conventional air forces are likely to be the most critical conventional element in such conflicts – but such a struggle would almost certainly involve significant conventional naval elements and its Iran's naval capabilities for asymmetric warfare are likely to be the most important element of its forces in an air-sea battle.

### ***The US Role in the Air Balance***

The US can deploy four separate air forces to the region: The US Air Force, the fixed and rotary wing elements of the Navy, the fixed and rotary wing elements of the Marine Corps, and the rotary wing elements of the Army. All have an overwhelming lead in combat experience, joint warfare and large-scale operations, sustainment and high sortie rates, refueling capability, the use of precision guided munitions, aircraft and pilot quality, and realistic air combat training.

All are modernizing at a far faster rate than Iran, and all are supported by a mixed of far more advanced IS&R, satellite, AWACs, JSTARS, MPA, targeting, secure communications, and electronic warfare capabilities. The deployment of the F-22 and F-35 is adding new stealth air-to-air combat and strike capabilities to the stealth strike capabilities of the B-2. In addition, the US Navy provides a major additional form of precision air strike capability through its surface and submarine cruise missile launch – capable forces.

The US has active air bases in Kuwait and Qatar, one of the world's most advanced Combined Air Operations Centers (CAOC) in Qatar, and basing agreements with Oman and the UAE. The US has an active base suitable for B-52, B-1, and B-2 operations in Diego Garcia, and basing rights for an Unmanned Combat Air Vehicle (UCAV) operations center in Djibouti. It cooperates closely with the Turkish, Saudi, Jordanian, and Egyptian Air Forces, as well as all GCC Air Forces, and carries out large numbers of multilateral and bilateral training exercises in the region.

The fact the US equips, trains, and partners with so many Southern Gulf and other region states makes it difficult to estimate how many aircraft it could deploy in a given type of contingency, but it is interoperable enough with most Arab air forces so that the main limiting factor would probably be a mix of the political willingness of given state to allow the US to deploy, and the particular capabilities of given bases to support US operations in a given country. In addition, the UK and France could provide combat aircraft and some enablers, and several Gulf countries operate British, French, and "Euro" combat aircraft – giving them immediate interoperability and sustainment at a tactical level.

### ***GCC Air Forces***

The GCC and other friendly regional air forces – which are described in the figures that follow – all operate more modern and advanced aircraft than Iran, and all have considerable capability to make use of US IS&R and battle management assets. They do, however, differ sharply in pilot and aircrew quality, readiness and sustainment, and ability to carry out joint and complex air operations.

At this point, the UAE air force is more effective than the air forces of other GCC states, and the Saudi Air Force lags behind the others in operational effectiveness in spite of its excellent equipment and facilities. The other GCC air forces fall in between, although most lack the modernization of both the UAE and Saudi Air Forces.

Far too much of the GCC force structure is effectively dependent on bilateral ties to the US 5<sup>th</sup> Fleet and US airpower in the region. Increased operations at the US Combat Air Operations Center (CAOC) in Bahrain in areas where the individual GCC forces need integration and interoperability at the GCC and multilateral levels. Exercises with US and European forces, have led to interoperability improvements for GCC naval air forces, but these improvements have been based largely bilateral training with the US rather than any organic approach. While the operational effect has been the same as if it were under Gulf leadership, it raises questions about the sustainability and survivability of GCC military cooperation should the US reduce its footprint.

All of the GCC and regional air forces lack advanced battle management and IS&R capabilities – often because of a failure to use their equipment effectively to established integrated or interoperable systems that share information and C4I/BM capabilities. They lack the level of sustainability and large-scale exercise capability they need at the national level, they lack standardization and interoperability at the GCC level, and do not exercise together in effective, realistic complex and joint air operations.

This is not the fault of the military or civil staffs of the Gulf Cooperation Council staff or outside advisors – which have recommended the creation of integrated air warning and control, combat operations, other battle management, advanced IS&R, sustainment, and dispersal capabilities since the early 1980s.

They have made similar recommendations regarding organizing truly interoperable and real-world air combat, air-sea battle, and air-land battle capabilities. They have advanced plans and concepts for the creation of an effective GCC COAC, integrated air surveillance of the Gulf and Gulf of Oman, as well as for the coordination of surface-to-air and missile defenses, and the secure deconfliction of air and land-based air defenses. More broadly, they have advanced similar plans and concepts to make matching improvements in naval and land capabilities, and capabilities for joint warfare.

Rhetoric aside, the fact is that most GCC states have leaders who do not trust each other, remain divided by feuds and prestige contests, and have been more willing to cooperate on a bilateral level with the US than truly cooperate within the GCC. It is possible that the ideas that King Abdullah of Saudi Arabia advanced at the GCC ministerial meeting at the end of December 2011 will lead to real progress in spite of these tensions, but it is still unclear that new words will turn into new realities.

The end result is that the respective royal families of each Southern Gulf state are a key limiting factor in its real world military capability, along with their de facto preference for dependence on the US over taking the risk of fully cooperating with other members of the GCC. These problems are compounded by a focus on the “glitter factor” of competing for the most advanced new weapons platform or the related “toys for the boys” basis, rather than well-planned and balanced force modernization that emphasizes real-world military effectiveness. This latter failing is encouraged by both governments and contractors, but it reflects a basic lack of pragmatism and leadership on the part of some of the senior royal military leaders in the GCC.

### ***The Iranian Air Force: A Weak and Aging Force***

The most likely forms of asymmetric and conventional conflict in the Gulf – and the key measures of containment and deterrence – are determined largely by the mix of air and naval power on each side. Ground forces could be used in small raids against offshore and coastal facilities, and Iran

could theoretically move some three land force brigades using its amphibious lift and ferries if it were unopposed. Iran also possesses a land force that can threaten Iraq and potentially Kuwait. In practice, however, it is Iranian threats to use air, missile, and sea power which have been the focus on most US and Southern Gulf attention, and it is US and Southern Gulf air and sea power that form the most direct asymmetric and conventional deterrent and threat to Iran.

The air balance decisively favors the US and Southern Gulf states. While Southern Gulf air forces have limits, the Iranian air force (IRIAF) still lags far behind the capabilities of the GCC air forces and even further behind the combined capabilities of the GCC and US air forces. **Figures 7 and 8** show that Iran lags badly behind the Gulf states in modernizing its air forces. Iran's most advanced fighters consist of a small number of export versions of the Su-24 and MiG-29, whose avionics lag far behind their Russian counterparts and date back to the early 1990s .

Iran's aircraft also suffer from limited access to required spare parts and upgrades, reducing Iran's effective airpower to roughly sixty percent of its existing planes; furthermore, while information on training is classified, Iran has made public far fewer air force exercises than missile and naval drills.

These limits to Iran's air force are particularly important as Iran has air bases that are only a few minutes flight time from critical targets in the Gulf and the coastal areas of the southern Gulf states. They are also important because Iran's weaknesses in air-to-air combat, and its weaknesses in surface-to-air missile defense which are described below, leave it highly vulnerable to any US or US and Gulf attack and vulnerable to a major preventive strike by Israel.

As for its structure and strength, the IRIAF is divided into three commands – Eastern, Southern, and Western, with the latter having the majority of active squadrons – with most of the advanced aircraft home-based in the interior of the country. Air command is split between the Iranian air force and the IRGC air force, with the former primarily controlling aircraft and the latter the caretakers of the strategic missile forces.

### *The Uncertainties Affecting Iran's Aircraft and Modernization*

Taken at face value, much of Iran's air force is something of a military museum. It is a tribute to Iran that it can keep so many of its US-supplied and older Russian and Chinese aircraft flying, but none of the Western-supplied aircraft in Iran's inventory have been modernized by the US since the fall of the Shah. Experts suggest, however, Iran has been relatively successful in maintenance, material and management -- enabling the IRIAF to continue flying despite an almost complete blockade on new parts.

Maintenance has been aided by the fact that Iran developed extensive illegal purchasing networks during the Iran-Iraq War and has maintained them ever since. It has kept many of its aircraft flying, although it is unclear that it can fly more than 60% of its 297-312 remaining combat aircraft at any given time.<sup>102</sup> There is no way on the basis of unclassified data to estimate its sortie generation rate over time, and it is unclear that Iran has ever stressed its air force to find out the answer. It does seem likely that its sortie generation rate over time would be a fraction of the rate that the US and better Southern Gulf air forces could generate.

A combination of cannibalization and re-engineered similar parts also enables Iran to maintain its systems. These efforts have been particularly successful with the F-4 and C-130, while the F-14 – which proved to be a maintenance problem for the US as well – remains far below operational

capacity. Iran has been trying to get the Su-22, -24, and -25's that it obtained from Iraq in 1991 to full effectiveness. Experts claim this effort has been supported by parts and advice from Russian and Ukrainian companies, but much of this aid is believed to have been sporadic and of limited utility.

Experts feel that Iran has proven unable to reverse-engineer the more advanced elements of American and Soviet aircraft, although Iran's reverse engineering skills have improved. Iran has made efforts to update many of its aircraft, but the needed to reverse engineer and improvise is a critical shortcoming since their US-flown counterparts – especially the 44 F-14s and 65 F-4D aircraft still in Iranian service – aircraft that never went through the long series of US Multi-Stage Improvement Programs (MSIPs) that corrected design problems, improved flight performance and sortie generation capability, and modernized their avionics and radars for air-to-air and air-to-ground/sea operations after 1979.

Iran has modern air-to-air and air-to-ground weapons, but it is unclear that it has the avionics and air-to-air capabilities to begin to compete with the modern combat aircraft of the Southern Gulf forces and US fighters. Iran claims to have modernized the avionics on some of its aircraft, and to have adapted its F-14s to carry the Hawk surface-to-air missile as a long-range air-to-air missile to compensate for the sabotage of the F-14s' capability to fire the Phoenix and to conduct beyond-visual-range air-to-air combat during the fall of the Shah. Iran also claims to have modified its F-4Ds to fire the C-700 or C-800 series anti-ship missiles.

It is unclear, however, whether such systems are really functional and how well they perform – if at all. Comparable questions surround Iran's efforts to mount C-700 or C-800 missiles on its helicopters; although such efforts are believed to be more successful than their fixed-wing counterparts, it is unclear whether Iran in the short run will have a rotary-wing missile capability. There are reports that Iran has acquired FL-10 missiles – a cheaper version of the C-701 – and has been developing that as an air-launched cruise missile.

Similarly, it is doubtful Russia systematically modernized Iran's early export versions of the 30 Su-24 and 35 MiG-29 – which lack the radar and avionics performance of their counterparts in Russian service. More broadly, Iran's air forces rely heavily on conventional bombs in an era dominated by precision-guided attack weapons with considerable stand-off capability. It is unclear whether this is a matter of weapons supply, avionics, doctrine, or training, but it does reflect a serious limit to Iran's offensive capabilities.

Iran has developed significant software skills and does produce some competent electronic warfare equipment. It is highly uncertain, however, that Iran can produce anything like the integrated capabilities necessary to systematically modernize its aircraft and make them competitive in either munitions delivery or electronic warfare. Iranian weapons modifications have likely produced incremental improvements in its weapons systems – for aircraft as well as other naval and land weapons – but there is a limit to how much piecemeal change will enable Iran to offset weapons platforms' old age. It is also unclear that Iran has anything like the test facilities to determine how effective its modifications would be against US air forces and ships, or against a properly trained modern Southern Gulf air force. There is no way to make such estimates without access to classified electronic order of battle and exercise data.

More broadly, Iran only has limited airborne AC&W and IS&R capability in peacetime, and lacks the ability to sustain and protect its systems in the event of a significant attack. Iran claims to have

created electronic warfare aircraft by upgrading Ukrainian Antonov AN-140s and to have modernized the avionics on its three P-3 Orion maritime patrol aircraft. If Iran has been successful, its aging AN-140s could function as mini-AWACs in a crisis, and provide airborne radar for one coast. If Iran also made use of the relatively advanced radar in its F-14s, it could provide limited but functional airborne radar coverage in peacetime. Iran also has improved its land-based radar coverage, and claims to have a mix of unmanned combat aerial vehicles (UCAVs and UAVs) it can use to make up for some of the limitation in its aircraft – likely visual surveillance and reconnaissance.

The success of its AN-140 upgrade program is in doubt, however, after the 2006 crash of an Iran-140 that killed the Ukrainian and Russian scientists on board, along with the Iranian managers who ran the program. Combined with Iran's ongoing difficulties in producing its own engines, this event also raised questions about Iran's indigenous airplane manufacturing capability.

### *Iran's Strengths and Weaknesses in Fighting a Significant Air War*

Given this background, it should be clear why it is easier to analyze Iran's order of battle than its warfighting capabilities. There are few meaningful data on IRIAF's real world warfighting capabilities. Like all the elements of the IRGC and other Iranian military forces, the Iranian Air Force does seem heavily dependent on conscripts and short-service personnel, and to have encountered problems in terms of its military politics and leadership.

Iran did a consistently poor job of managing large-scale air operations in the Iran-Iraq War. Like the other elements of Iran's forces, it would now have to go to war with forces that have not had any real military combat experience since the end of the Iran-Iraq War in 1988 – a period of nearly a quarter of a century. While the IRIAF has focused on improving its training regime and making simulations more realistic, nevertheless it lacks the material, number of experienced trainers, and, above all, accurate training equipment and drills to prepare its pilots for high-speed and large-scale combat operations.<sup>103</sup>

The regional tendency to emphasize aircraft numbers over sustainability is an issue. One reason that Arab air forces lost so decisively to Israel in past wars is that they could not generate anything like the surge sortie numbers – or sustained sortie numbers – that Israel could. Numbers of aircraft are never the critical measure of air strength. The issue is how many are operational at the start of a conflict, how well aircraft can be repaired or made ready in combat, and how many sorties can be generated over time (estimates suggest that Iran would have difficulty generating even one sortie every two days for its F-14s, while US aircraft are expected to undertake 2-3 sorties per day during intense air operations)<sup>104</sup>.

Current Iranian exercises, command and control, technology, and vulnerabilities to outside attack or suppression do indicate Iran might still have critical problems in managing large air operations. Iran's lack of modern technology for integrating operations and creating the most advanced situational awareness possible could be critical. Iran's newer defense concept – relying on decentralized forces that are relatively unaffected by command and control strikes – is likely to be far less effective in aerial warfare, where small forces have a much harder time hiding and launching irregular attacks without warning. Iran's air force also conducts few joint exercises with its Army, IRGC, or Navy and those it does conduct are fixed set piece exercises with guaranteed success – a form of exercise training that can do more harm than good.

Basic pilot skills seem good, but this is not the same as having had advanced combat training – particularly using the kind of large-scale air operations training used by the US and some of its Gulf allies. Nevertheless, Iran’s pilots do seem to be relatively well trained subject to the limitations of their aircraft and flying hours. In past Middle East wars that pitted Western against Soviet and/or indigenous aircraft, the Israeli and Western pilots possessed a marked edge in their individual and group training as well as in technology and C<sup>4</sup>ISR. While Iran does not appear to have conducted mass drills with its fighters and strike aircraft, its personnel are generally believed to be competent individual pilots, suggesting that despite inferior equipment they may inflict serious casualties on Arab air forces.

The Iranian air force also seems to face a wide range of additional operational limits and problems.

- Iran would need weeks of strategic warning to surge its air force to maximum defensive readiness and/or conduct a major combat operation.
- Even if Iran’s air force does not come under large-scale attack, Iran’s sortie rate will drop precipitously as it did at the beginning of the Iran-Iraq War – a factor that crippled it in competing with an incompetent and terribly led Iraqi Air Force.
- Iran could carry out a series of surprise strikes against Southern Gulf and Iraq targets, but not sustain either a long, intense air offensive or a long, intense air defense screen.
- Iran lacks the air strength to defend the entire country, although enough warning capability will probably survive attack and suppression to provide some coverage of its coast and western border, and its defense capabilities will improve with the depth of enemy penetration into Iranian air space.
- Iran will face serious limits in electronic warfare and countering jamming and electronic intelligence (ELINT) operations from any US or US-led force.
- Iran’s limited air control and warning environment will be vulnerable to jamming, spoofing, and a variety of anti-radiation weapons.
- Iran’s land and air-based IS&R systems are of limited capabilities, vulnerable, and sometimes relatively easy to suppress.
- Iran will have a major disadvantage in air-to-air missile combat and especially in beyond visual range air-to-air combat.
- Iran will not be able to penetrate into a properly maintained US or Southern Gulf air defense net in which anything like an AWACs-controlled air defense screen is present.
- Iran will be vulnerable to stealth systems like the B-2 and F-22, as well as the F-35 as it deploys. It will have very limited air to air defense capability against well-planned, well flown low altitude missions flown by cruise missiles, the B-1, and modern US and Southern Gulf strike fighters – with the possible exception of point defenses using its Russian supplied short-range TOR-M1 surface-to-air missiles.
- Iran will have problems in using its anti-ship and any other cruise missiles requiring a remote target system or airborne radar, and UCAVs/UAVs if US forces are present with modern electronic warfare and jamming capabilities, and in operating its maritime and intelligence aircraft both in the face of jamming and the threat from fighters.
- Iran would have serious problems in screening its critical targets. These not only include its nuclear facilities, but its missile facilities, major production facilities, refineries and fuel storage and distribution system, electrical grid, water purification facilities, and other key targets. A precision strategic bombing campaign could cripple much of Iran’s economy and military production capability in a matter of days.
- Iran could engage in raids and limited air efforts, but would probably lose the ability to operate aircraft in numbers over the Gulf and southern Iran in a matter of days. It could not use its air force in numbers in sustained, survivable sorties to defend its ports, larger surface ships, or southern bases.



- Iran has so far been unable to construct precision munitions, weakening the IRIAF's ability to effectively target GCC forces or infrastructure.
- Limited tanker and air refueling assets that restrict Iran to maintaining continuous combat air patrols over only a small number of sites – key areas like Tehran.

It should be stressed that these comments apply to sustained levels of combat over time where the US is present or Southern Gulf air forces are prepared, properly trained, and made interoperable by either US support or reforms that are still very much a matter of discussion rather than implementation.

Moreover, experts indicate that Iran's military literature and training methods indicate that it is aware of the deficiencies in its air force, and has been seeking to remedy them through a combination of technological and doctrinal adjustments. With an eye for the ability of Western and Israeli forces to conduct devastating first strikes, the Iranian air force has sought to disperse its aircraft and provide independent command control systems, allowing small units to continue to fight even if a first strike badly damages the C<sup>4</sup>I system. Recognizing its own aircraft have limited ranges and effectiveness, newer training exercises have stressed in-flight refueling, strike missions at critical infrastructure, deployment of air-to-ground missiles, and advanced air-to-air combat.

Experts also confirm that Iran has carefully studied the tactics, technology, and the high tempo of US operations— including the Gulf wars, campaigns in the Balkans, and Operation Enduring Freedom – and carefully observes observe US air power tactics and management. These observations not only provide Iran with a blueprint for how a US/GCC air campaign against it might play out, but may have enabled more realistic and effective drills for its own air force.

There are only limited unclassified data on the quality of the enablers Iran needs -- its real world IS&R, C<sup>4</sup>I, electronic warfare, and refueling capabilities. Experts do report Iran has sought to upgrade its radar systems with technology that has a higher chance of detecting stealth aircraft, potentially enabling it to diminish one of the US's primary advantages. Iran has also reportedly acquired an older F-16 fighter from Venezuela; while a single model is unlikely to allow it to produce its own advanced fighter aircraft, the transfer would enable Iran to better understand the avionics and capabilities of its potential foes.

Experts also feel, however, that such Iranian systems are only likely to be effective in peacetime and could be quickly suppressed or destroyed in combat. Iran lacks survivable IS&R capability to support air operations, has only two to three fully operational P-3s whose lack of full-scale modernization limits their wartime capability. It relies on aging Russian aircraft for much of its AC&W capability, relies largely on modified Cessnas and other small aircraft for maritime surveillance, but has no survivable “enablers” for air warfare. It is gradually developing a family of UAVs and UCAVs to provide better IS&R/battle management/targeting capability but these now are limited in capability and poorly netted, and lack effective over-the-horizon targeting capability.

Experts also report that Iran has been developing its own human-centric data gathering system that is designed to operate in the face of overwhelming US electronic superiority. Iran uses manned stations and small ships like the dhows that ply the Gulf and Strait to watch commercial and military traffic in the region, and to try to create an intelligence network that could provide targeting data during a war. This passive network, while slower and less accurate than modern digital (or even analog) systems, may prove resilient enough to help support the style of warfare

Iran expects the US to wage. Iran has also made efforts to blend its human assets and analog electronic systems, creating a hybrid command and control design that can coordinate stacks of missiles and packs of fast missile boats, theoretically even in the face of decapitating air strikes.

In short, the Iranian Air force has serious limits, but should be not discounted. An untested capability does not necessarily equal a lack of capability. The Iranian Air Force is operational in the Gulf and the Gulf of Oman, and no one can predict the way in which any air combat might emerge between Iran, its Arab neighbors, and the US.

### *Iranian Claims to Air Modernization and Combat Capability*

As touched upon earlier, Iran's officers have made ambitious claims about Iranian capabilities. Moreover, Iran has sought more modern fighters from Russia, but past reports of sales have never materialized. As a result, Iran has sought to develop its own fighters, the most notable of which are the Saeqeh ("Thunderbolt") and the Azarakhsh ("Lightning"), both of which are based on the Northrop F-5. Iran also has made many claims to have modernized its fighters and their systems and munitions, although many such claims are clearly exaggerated:

- "Any violation against Iran's airspace, territorial waters, and land will receive a strong response by the Islamic Republic of Iran," Mohammad Saleh Jokar, Security and Foreign Policy Committee, Majlis, November 8, 2012.<sup>105</sup>
- "Defenders of the Islamic republic of Iran will receive a strong response by the Iranian Republic of Iran," Iranian Minister of Defense, Massoud Jazayeri, Deputy Commander of Iran's Armed Forces, November 8, 2012.<sup>106</sup>
- "Despite Western sanctions, Iran is not having problems procuring training jets. "Kowsar 88 and Azarakhsh training jets are among the projects that are underway... and the blueprints have been prepared, and we are witnessing very good progress in this field... Like the Saeqeh (Thunderbolt), these jets will come into operation soon." "General Manouchehr Yazdani, Commander of the Islamic Republic of Iran Air Force for Training, October 26, 2012.<sup>107</sup>
- "Zionists must expect hundreds of other drones in 25 different models with new flying systems that they won't know how to confront. He added that the infiltration of the UAV exposed only the smallest part of Hezbollah's power." Brigadier General Mohammad Reza Naqdi October 22, 2012.<sup>108</sup>
- "We can simultaneously fire numerous and countless missiles from different spots at one or several targets, which indicates our capability to perform convergent and parallel operations." Brigadier General Hossein Salami, Lieutenant Commander of the Islamic Revolution Guards Corps, September 27, 2012.<sup>109</sup>
- "Sukhoi fighter jet has been optimized by the Army Air Force experts and now has the capability to hit and destroy targets with high precision in absolute darkness." – General Seyed Mohammed Alavi, Lieutenant Commander of the Iranian Air Force for Operations, April 25, 2011.<sup>110</sup>
- "The production of hi-tech and advanced military tools, weapons and equipments [sic] displays Iran's might and power and proves that sanctions against the country have been futile. Iran has recently made good progress in the air industry and has succeeded in gaining the technical know-how for producing stealth aircraft and drones." – Brigadier General Ahmad Vahidi, Iranian Minister of Defense, October 7, 2011.
- "Now the Islamic Republic of Iran is not only independent in the area of defense industries production, but also exports strategic defensive items." – General Mostafa Mohammad Najjar, Iranian Defense Minister Brigadier, February 6, 2006.
- "One of the most important actions taken in these drills was increasing the range of the anti-radar missiles mounted on Sukhoi-24 fighters... they hit the specified targets successfully.

The missiles enjoy a 100-percent precision capability, meaning that they can hit any target with a zero margin of error.” – Brigadier General Hossein Chitforoush, Iranian Air Force Lieutenant Commander, September 15, 2011

- “The squadron is the first fighter squadron equipped with fighters [Saeqeh] and equipments made inside the country.  
The squadron is capable of detecting and confronting aggressive aircraft and enemy fighters.” – General Seyed Mohammad Allavi, Lieutenant Commander of Army’s Air Force for Operations, February 25, 2011.
- “By mass-production of home-made Saeqeh fighters, we move past all the gorges of designing and building of this fighter and we will strive to use more high-tech and updated models in our fleet in the future.” – Brigadier General Hassan Shahsafi, Iranian Air Force Commander, September 9, 2009.<sup>111</sup>

There are obvious problems in taking such claims seriously. For example, Mohammad Saleh Jokar, a member of the Security and Foreign Policy Committee of Majlis, joined Iran’s senior commanders in claiming in early November that the IRAF had driven a US Predator UAV out of Iranian air space and that, “Any violation against Iran’s airspace, territorial waters, and land will receive a strong response by the Islamic Republic of Iran.”<sup>112</sup>

The facts illustrate the degree to which Iranian claims can be unreal. In practice, it was two Su-25s in the IRGC air units that attempted to shoot down the predator over international waters, and failed. The slow flying Predator did not “escape” the Su-25s failed to hit it.<sup>113</sup> It is unclear whether the Su-25 pilots – flying an aircraft is designed as a tank killer and for land combat – knew it was still outside Iran’s air space or were provoking an incident. What is clear is Iran makes many claims about its air, naval, land, and missile forces that are exaggerated or nothing more than propaganda and does so to cover up known problems and weaknesses.

More generally, the IISS Military Balance for 2013 indicates that Iran has a total of 334 combat aircraft in inventory.<sup>114</sup> These include more than 75 F-5s and F-5IIs, 43 F-14s, 65 F-4D/Es, more than 6 RF-F-E, and 5 P-3MP Orions. This is a total of at least 194 aging US aircraft supplied more than 30 years ago when the Shah was still in power – some 58% of Iran’s air force. Iraq has 24 low quality F-7Ms and 10 Mirage F-1Es it got from Iraq in 1991. This raises the total of aging, obsolete aircraft to 228 or 68%.

So far Iran has only deployed six of its Azarakhsh (a design that seems to have been derived by reverse engineering the US fighters in Iranian service), and up to six Saegheh Iranian-made fighters (a design Iran claims is superior to the F-18 but seems to be an upgraded version of the F-5F.)

Iran’s combat aircraft imports since the fall of the Shah consist of 36 early export versions of the MiG-29 fighters, 30 early export versions of the SU-24MK, and 7 Su-25 anti-tank attack aircraft. None compare to first-line US, British, or French combat aircraft. None compare to Saudi holdings like 81 F-15C/Ds, 71 F-15S, 80 Tornados, and 24 Typhoons – at total of 256 more capable aircraft than any in Iranian inventory. None compare to a smaller Gulf air force like the UAE, which has 139 modern fighters: 54 F-16E Block 60), 25 F-16F Block 60, 16 *Mirage* 2000-9DAD; 44 *Mirage* 2000-9EAD, and 7 *Mirage* 2000 RAD.

### ***Summarizing the Air Balance: The US, the Southern Gulf Problem, and Iran’s Capability for Air Combat***

While Iran’s air force does have the range to strike targets in the Gulf, its offensive capability is unlikely to play a role in any protracted air battle. To some extent, the Iranian air force will also be limited by its inexperience with large-scale operations and the actual use of many of its upgrades

and munitions in combat. Iran will also be limited by aircraft ranges in penetrating deep into Saudi Arabia. Iran is unable to strike targets all across the Gulf without secure refueling, while all of Iran is vulnerable to tanker-supported Arab or US strike aircraft. While Iranian air forces could conceivably benefit by launching a surprise attack or the elimination of Arab radar by their own missile forces, advanced radar systems and long-range missiles (IHAWK and Patriots) would still probably seriously degrade any Iranian operation.

These limits to Iran's capabilities must, however, be kept in perspective. Although Iran's air assets fall far short in quality relative to those of its steadily modernizing Gulf neighbors, the Southern Gulf states do have some special vulnerabilities which could be exploited if the US does not provide overall battle management and IS&R capability. The Southern Gulf states have talked for years about interoperability and integrated air operations and air defense systems, but made far too little progress. There are many areas where their systems and stocks are not interoperable, readiness and training levels vary sharply by country, and so do preparedness and reliability.

The air forces of the Southern Gulf states need improved interoperability, specialization, and orientation around key missions. They need far more focus on unity of effort in war fighting, deterrence, and development terms. The Gulf Cooperation Council recognized the need for improvements in these areas during their December 2011 Ministerial meeting and has made improvements a key priority. It has, however, made little real progress in 2012, and it will take at least several years for the GCC to act – and it has issued the right words before. If rhetoric were reality, virtually every nation in the world would be a superpower.

The Southern Gulf states also face the problem that the smaller Gulf states and key cities lack strategic depth and are dependent on highly vulnerable critical infrastructure facilities such as desalination facilities that lie close to Iran. Most Southern Gulf states are comparatively small countries, they are vulnerable to Iran's large force holdings and selective attacks that aim to cripple their critical infrastructure and coastal facilities, and lack the resources for a war of attrition. This gives even more importance to the fact they have failed to effectively integrate their IS&R and air war battle management capabilities on GCC basis

Furthermore, Iran has improved the "passive defense" of its air and surface-to-air missile units – camouflage, aircraft dispersal, and hardened shelters – in an effort to reduce losses from American and Arab Gulf attacks. While American and GCC forces have only a limited number of launching points, Iranian aircraft, due to the size and variety of large airports in Iran, will face a much simpler time in surviving on the ground; degradation of airfields will hinder the GCC and American sortie rate much more than the Iranian rate.

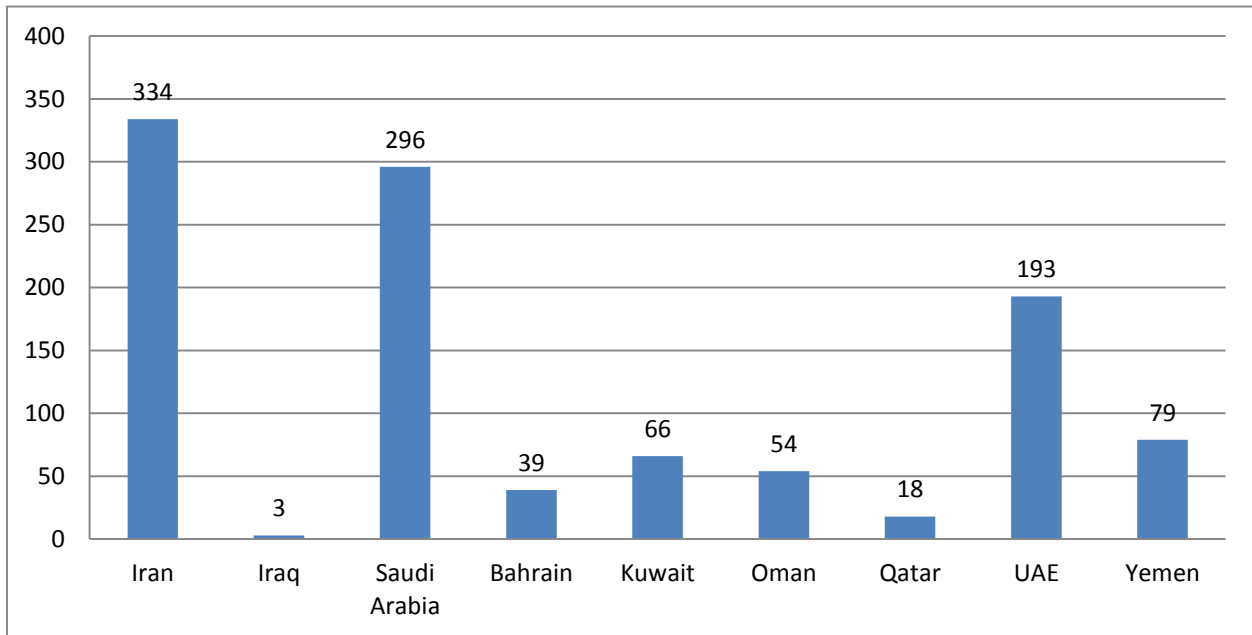
Much now depends on the extent to which all of the Southern Gulf states cooperate effectively with the US. The Southern Gulf states need the US and the US needs them. The US cannot fight large-scale air war in the Gulf using carriers and ship-based cruise missile alone – although these provide extremely powerful strike and defense capabilities for more limited engagements. It needs effective support from its Gulf allies who now must be trained and equipped to advantage of the full range of US-enablers like the E-3C AWACs, electronic intelligence and warfare aircraft – and ideally create integration battler management. IS&R, training, and support facilities and capabilities of their own. The US also needs protection from local land-based air defense and fighters, and access to Gulf air bases for support/arming/recovery to efficiently fight a major air or air/sea conflict.

Finally, – as is described later in this the sections of this report dealing with Iran’s short and medium range rockets and missiles, and dealing with Iran’s longer-range missile systems in ***Volume II: The Missile and Nuclear Dimensions*** -- air power cannot be separated from missile power. Iran’s longer-range missile forces are limited today in terms of range, payload lethality and accuracy. They are more useful in terms of posing political threats and as tools of intimidation than as effective warfighting forces.

Even today, however, Iran can volley enough shorter-range systems to have a serious potential impact on Iraq and Kuwait, and its capabilities to volley continue to grow. Its capabilities will also change vastly in the future if Iran can deploy nuclear-armed medium to long-range missiles or even missiles with conventional precision and terminal homing warheads. Iran is seeking such systems and – is discussed in the next section – this not only affects the balance of airpower but balance in terms of surface-to-air and missile defenses.

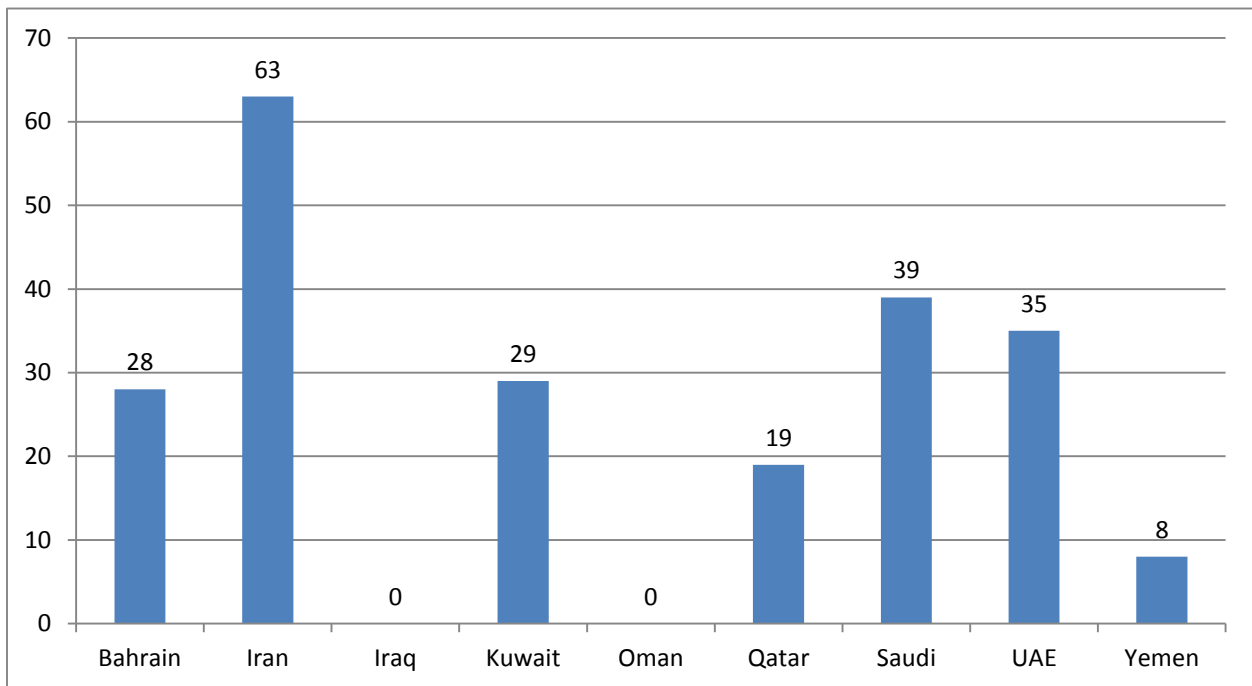
**Figure 7: Total Gulf Holdings of Combat Aircraft**

**Fixed Wing Combat Aircraft**



Note: Only armed or combat-capable aircraft are counted, not trainers, recce or other aircraft. Iraq has 3 Cessna AC-208Bs fulfilling dual recce and attack roles.

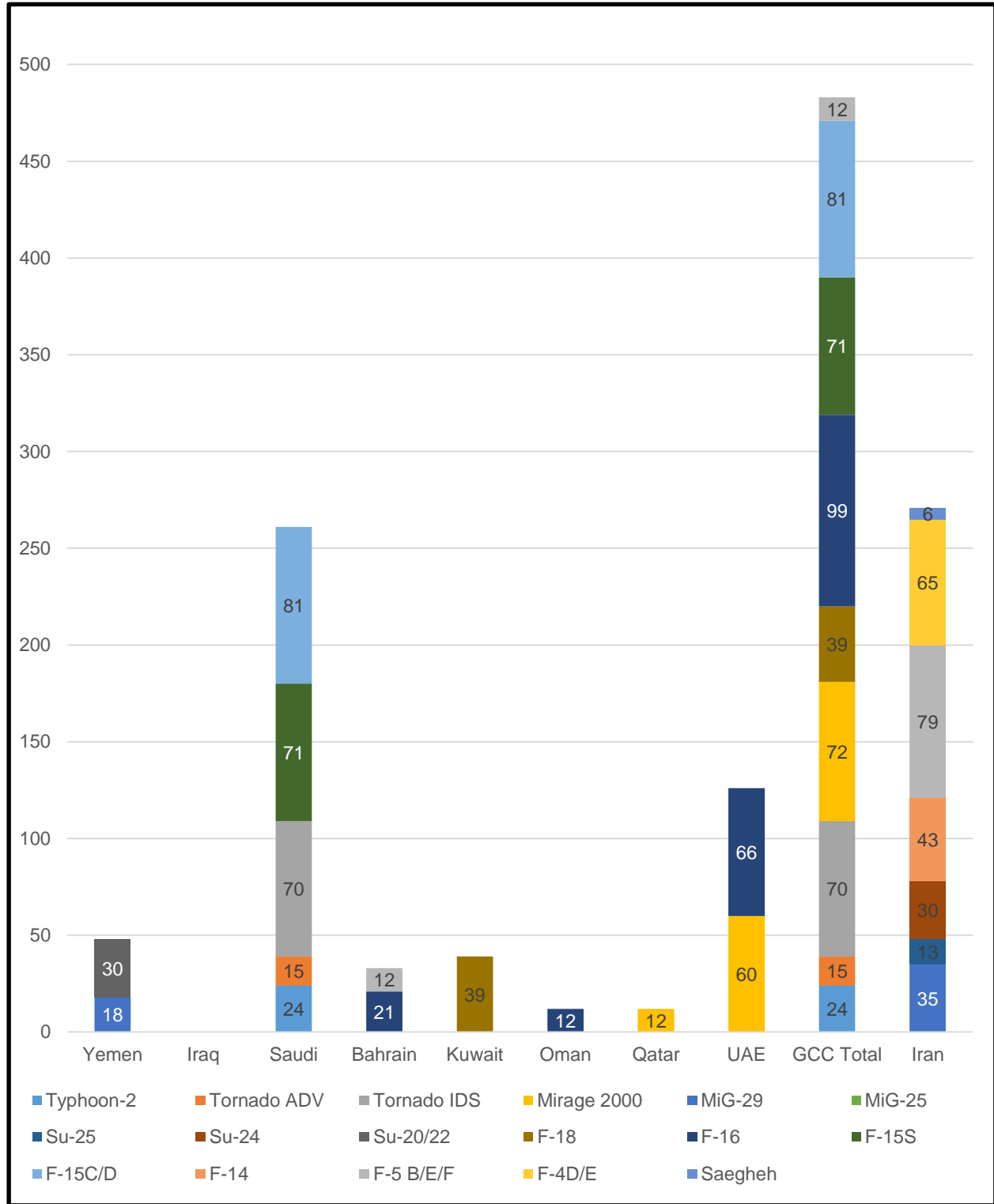
**Armed and Attack Helicopters**



Source: Adapted from the IISS, Military Balance, 1999-2013. Some data adjusted or estimated by the author.

Note: Only includes dedicated attack helicopters and those equipped with Air-to-Ground or Air-to-Ship missiles, it does not include multi-role helicopters, stored or unarmed electronic warfare, recce, or trainer aircraft

**Figure 8: Comparative Iranian and Gulf Air Forces by Type-  
Part One: Combat Aircraft Graph**



Source: Adapted from the IISS, Military Balance, 1999-2013

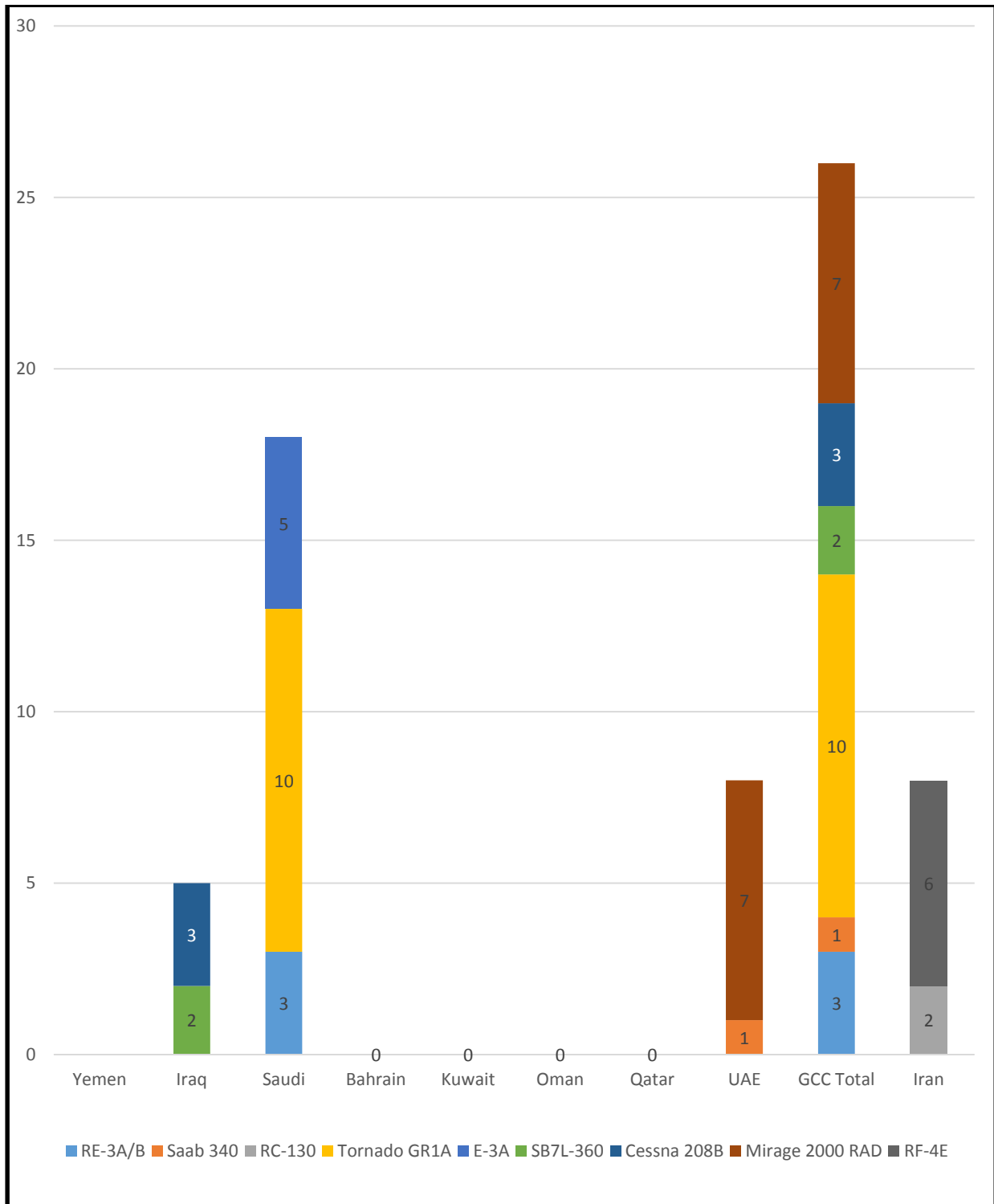
**Figure 8: Comparative Iranian and Gulf Air Forces by Type-  
Part Two: Combat Aircraft (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Typhoon-2			24						24	
Tornado ADV			15						15	
Tornado IDS			70						70	
Mirage 2000							12	60	72	
MiG-29	18									35
MiG-25										
Su-25										13
Su-24										30
Su-20/22	30									
F-18					39				39	
F-16				21		12		66	99	
F-15S			71						71	
F-15C/D			81						81	
F-14										43
F-5 B/E/F				12					12	79
F-4D/E										65
Saegheh										6

Source: Adapted from the IISS, Military Balance, 1999-2013



**Figure 8: Comparative Iranian and Gulf Air Forces by Type-  
Part Three: Reconnaissance and AWACS Aircraft (Graph)**



Source: Adapted from the IISS, Military Balance, 1999-2013

**Figure 8: Comparative Iranian and Gulf Air Forces by Type-  
Part Four: Reconnaissance and AWACS Aircraft (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
RE-3A/B			3	0	0	0	0		3	
Saab 340								1	1	
RC-130										2
Tornado GR1A			10						10	
E-3A			5							
SB7L-360		2							2	
Cessna 208B		3							3	
Mirage 2000 RAD								7	7	
RF-4E										6

Source: Adapted from the IISS, Military Balance, 1999-2013

These figures show that Saudi Arabia has a monopoly of airborne warning and control systems, and that its AWACS aircraft give it a major advantage in battle management, some forms of intelligence collection and air force maritime patrol capability. They also reflect the limited emphasis on reconnaissance aircraft capability in the Gulf region, and the limitations to situation awareness and targeting. While Iraq has growing holdings, their impact and mission integration are more geared towards internal security and support for COIN operations. The problems for the southern Gulf States will, however, be of limited importance if they operate in a coalition with the US.

## Ground-Based Air Defenses

Ground based air defenses are another area where the US and GCC states have major advantages over Iran. The US provides support to the land-based air defenses of the Southern Gulf states, as well a steady modernization of their medium and longer-range systems. The US is also working with the Southern Gulf states to add missile defense capabilities through the deployment of US missile defense ships, the transfer of more advanced air defense missiles and the sale of wide-area theater missile defense capabilities. The US is deploying guided missile ships with advanced air defense coverage, and can provide the Southern Gulf states with advanced IS&R information and missile launch and vector data to those GCC states who configure and train their surface-to-air missile forces to use such data.

The full performance capabilities of all US missile defense systems are classified, but it is clear that a modified SM-3 destroyed a US satellite at an altitude of 130 nautical miles (240 kilometers), and some sources put its maximum, range at 114-230 miles.<sup>115</sup> The US Missile Defense Agency (MDA) describes US shipborne missile defense capabilities with the SM-3 missile as follows:<sup>116</sup>

Aegis Ballistic Missile Defense (BMD) is the sea-based component of the Missile Defense Agency's Ballistic Missile Defense System (BMDS). Aegis BMD builds upon the Aegis Weapon System, Standard Missile, Navy and joint forces' Command, Control and Communication systems. The Commander, Operational Test and Evaluation Force, formally found Aegis BMD to be operationally effective and suitable. The Navy embraces BMD as a core mission. In recognition of its scalability, Aegis BMD/SM-3 system is a keystone in the Phased Adaptive Approach (PAA) for missile defense in Europe.

### *Regional Defense – Aegis BMD Engagement Capability*

- Defeats short- to intermediate-range, unitary and separating, midcourse-phase, ballistic missile threats with the Standard Missile-3 (SM-3), as well as short-range ballistic missiles in the terminal phase with the SM-2.
- Flight tests are conducted by Fleet warships. Each test increases the operational realism and complexity of targets and scenarios and is witnessed by Navy and Defense Department testing evaluators.

### *Homeland Defense – Aegis BMD Long Range Surveillance and Track*

- Aegis BMD ships on Ballistic Missile Defense patrol, detect and track ballistic missiles of all ranges – including Intercontinental Ballistic Missiles and report track data to the missile defense system. This capability shares tracking data to cue other missile defense sensors and provides fire control data to Ground-based Midcourse Defense interceptors located at Fort Greely, Alaska and Vandenberg Air Force Base, Calif. and other elements of the BMDS including land-based firing units (Terminal High Altitude Area Defense, Patriot) and other Navy BMD ships.

### *Deployment*

- As of November 2012, there are 26 Aegis BMD combatants (5 cruisers [CGs] and 21 destroyers [DDGs]) in the U.S. Navy. Of the 26 ships, 16 are assigned to the Pacific Fleet and 10 to the Atlantic Fleet. In response to the increasing demand for Aegis BMD capability from the Combatant Commanders, the MDA and Navy are working together to increase the number of Aegis BMD capable ships. Such efforts consist of upgrading Aegis DDGs to the BMD capability, incorporating Aegis BMD into the Aegis Modernization Program and new construction of Aegis BMD DDGs.

### *International Efforts*

- Aegis BMD is the first missile defense capability produced by the MDA that has been purchased by a military ally. Japan's four KONGO Class Destroyers have been upgraded with BMD operational capabilities.

- SM-3 Cooperative Development Program is the joint U.S.-Japan development of a 21-inch diameter variant of the SM-3 missile, designated SM-3 Block IIA, to defeat longer range ballistic missiles. Deployment begins in 2018.

*Future Capabilities*

- Engagement of longer range ballistic missiles.
- Improving existing early intercept capability.
- Enhanced terminal capability against short and medium range ballistic missiles.
- Aegis Ashore.
- Increased number of ships and missiles.
- More maritime ally involvement

Given time, the US can rush additional surface-to-air missile defense units into the Gulf or other friendly regional states, and the US Army will be able to deploy THAAD or SM-6 wide area missile defenses once it acquires and integrates such systems into its forces.<sup>117</sup>

The Gulf states, in turn, are expanding and improving their surface-to-air missile forces and acquiring at least limited anti-missile defense capabilities. Most have – or will acquire – the PAC 3 version of the Patriot system, which has a greatly improved anti-missile defense capability as well as greatly upgraded air defense capabilities.<sup>118</sup>

The PAC 3 is designed only for the missile defense role and is far more maneuverable than the previous Patriot missile series, including the PAC 2 GEM – which has greatly improved missile defense capability relative to earlier Patriots and can also be used for air defense. The PAC 3 has a more advanced hit-to-kill warhead, and has a much greater range and an advanced Ka-Band seeker that can detect and home in on the missile warhead. It is relatively smaller and 16 can be loaded on a launcher versus only four PAC 2. Unclassified estimates give the PAC-3 a maximum ballistic missile intercept range of 15 kilometers and the improved PAC-3 MSE a range of 22 kilometers.

The US Missile Defense Agency (MDA) states that the PAC 3:<sup>119</sup>

- Provides simultaneous air and missile defense capabilities as the Lower Tier element in defense of U.S. deployed forces and allies.
- Works with THAAD to provide an integrated, overlapping defense against missile threats in the terminal phase of flight. Jointly, these systems engage the threat by forming a multi-tier theater defense against adversary missile threats using peer-to-peer engagement coordination, early warning track data, and battle management situational awareness.
- Contributes to the entire system's situational awareness by transmitting precision cueing data to other theater elements while simultaneously protecting system assets against short-range ballistic missiles, large-caliber rockets, and air-breathing threats.
- Provides detection, track, and engagement of short-range ballistic missiles and cruise missiles. These engagements are further enhanced by networked remote sensors that supply early warning data to increase the probability of success.
- Improves Upper-Tier Debris Mitigation capability to mitigate the excessive radar load and potential missile waste caused by debris from upper-tier intercepts.

The UAE has already announced plans to buy the new US THAAD wide area missile defense system, including a \$1.96 billion buy of 9 THAAD launchers and 48 missiles, plus additional equipment valued at \$1.135 billion. Qatar has requested the sale of two THAAD units with 12 launchers, 150 missiles, plus parts, training, and logistic support at a potential cost of \$6.5 billion. Possible arms transfer plans are being briefed to other Gulf states.<sup>120</sup>

THAAD has a range greater than 200 kilometers and a speed of over Mach 8.24 or 2.8 km/s. It was first deployed by the US Army in 2012. It is an advanced missile defense system capable of shooting down ballistic missiles both inside and just outside the atmosphere and is designed to defend against asymmetric ballistic missile threats. It uses hit-to-kill technology, whereby kinetic energy destroys the incoming warhead and its high altitude intercept reduce the effects of enemy weapons of mass destruction before they reach the ground. The system has for major components:<sup>121</sup>

- **Launcher:** Truck mounted, highly mobile, able to be stored; interceptors can be fired and rapidly reloaded. **Interceptors:** Eight per launcher.
- **Radar:** Army Navy/Transportable Radar Surveillance (AN/TPY-2) – Largest air-transportable X-band Radar in the world searches, tracks, and discriminates objects and provides updated tracking data to the interceptor.
- **Fire Control:** Communication and data-management backbone; links THAAD components together; links THAAD to external Command and Control nodes and to the entire BMDS; plans and executes intercept solutions.

According to its manufacturer, THAAD,<sup>122</sup> “can accept cues from Aegis, satellites, and other external sensors to further extend the battle space and defended area coverage, and operates in concert with the lower-tier Patriot/PAC-3 system to provide increased levels of effectiveness.”

Once again, however, Iran cannot compete with the GCC states in this aspect of military capability, much less the combined capabilities of GCC and US forces. Most GCC states also have a wide range of relatively advanced short-range vehicle mounted and man-portable surface-to-air missile systems or SHORADs.

As noted earlier the main problem with GCC forces is the lack of true integration and interoperability. This is particularly critical in case of air and missile defenses, where the short flight times over the Gulf, concentration of key targets in the Gulf or near the coast, risk of Iran penetrating through the “edges” of national air defense systems, and problems in deconflicting air and surface-based defense systems all combine to create a clear need for a truly integrated air and missile defense system. The failure to create such a system is the fault of the leaders of the GCC states, and not their military, but it does significantly degrade the real-world capability of this aspect of Gulf forces.

In an attempt to combat this weakness Secretary of Defense Chuck Hagel recommended on Dec 6, 2013 that the US sell weapons systems to GCC countries as a block, instead of in individual packages. Secretary Hagel emphasized that missile defense systems would be more effective if integrated across the region. It remains unseen if GCC countries could put aside their differences in order to take advantage of such an opportunity, or if the US will insist on block sales or acquiesce to individual Gulf states’ desires for new weapon systems.<sup>123</sup>

### *The Limits to Iran's Surface-Based Air Defenses*

Iran did not have a functioning, integrated land-based air defense system at the time the Shah fell. It had most of the sensors and command and control systems for a medium to high-altitude system, but not the software and technical support necessary to make the system function. Iran has since integrated many of the elements of such a system using Russian, Chinese, US, European, and Iranian-designed and made equipment. It has also created sheltered and hardened command centers and buried data links for some systems. It has integrated its systems using optical fiber netting in the West and parts of the South, but its integration and netting efforts are weaker in the East and North.

Iran also does not have the design and manufacturing capability to create a truly modern system, one that is immune to electronic warfare and can function without becoming tactically vulnerable to anti-radiation weapons and other forms of active "suppression of enemy air defense" (SEAD) systems. Iran's network also faces US and GCC aircraft with considerably higher performance and decoy abilities than the planes they were designed to target, limiting their value even without electronic warfare.

Unclassified sources differ over the details of Iran's surface-to-air missile forces. Sean O'Connor reported 41 strategic SAM sites were active in a report dated January 2010.<sup>124</sup> The IISS reports that Iran has a titular holding of 150 IHawk systems and claims to be able to produce its own missiles. Work done by Sean O'Connor indicates that there were 22 Hawk sites with coverage focused on key cities and Iran's main oil facility and port along the Gulf.<sup>125</sup> He reported seven Chinese-made HQ-2 (an SA-2 clone) sites were active in 2010, but that the system was not a key part of Iran's forces.

O'Connor also reported that there were seven SA-5/S-200 sites providing long-range medium to high altitude coverage of key cities, the border with Iraq, and the Gulf. O'Connor felt that these were some of the most critical aspects of Iran's land-based air defenses,

The four northernmost sites are positioned to defend the northern border and the region surrounding the capital of Tehran. A fifth site is situated to defend facilities in and around Esfahan in central Iran, including the Natanz nuclear facility. The last two sites are situated at Bandar Abbas and Bushehr and provide coverage over the Straits of Hormuz and the northern half of the Persian Gulf, respectively.

The northern four S-200 sites, as well as the southern two sites, are well positioned to provide air defense outside Iran's borders to deter any inbound aggressor from approaching the ADIZ [Air Defense Identification Zone]. The central site near Esfahan is a curiosity, however. The southern and western portions of the coverage area are limited due to the presence of a good deal of mountainous terrain, in some cases 10,000 feet or more higher than the terrain where Esfahan is located. This also affects the remaining six sites, but they are affected to a lesser degree due to the fact that they are positioned to defend outwards towards the border and beyond, not likely intended to defend against targets operating deep within Iranian airspace.

The Esfahan site, in direct contrast, is apparently situated to defend a central portion of the nation, and as such is limited in its effectiveness by the aforementioned terrain considerations. The curiosity lies in positioning a long-range SAM system in such a fashion to apparently purposely limit its effectiveness. This can be overlooked to a small degree, as the S-200 is not necessarily a choice system when it comes to engaging low-altitude targets, but the terrain in the area would seem to greatly reduce the effectiveness of the Esfahan site. The radar horizon is the key issue here, as each piece of terrain situated higher than the engagement radar will carve a significant portion out of the system's field of view and limit its ability to provide widespread coverage.

Iranian S-200 sites appear to be purposely limited in their composition. Each site consists, unusually, of one 5N62 (SQUARE PAIR) engagement radar and two launch rails.

The IISS estimate in the 2012 edition of the *Military Balance* differs from that of O'Connor and states there are 10 SA-5 long-range medium to high altitude missiles and 45 Chinese-supplied SA-2 clone systems. O'Connor reports that there are some 31 unoccupied, prepared SAM sites that are either HQ-2 or HAWK sites, and could be used to disperse Iran's forces and reduce their vulnerability to SEAD attacks. He also notes, however, that,<sup>126</sup>

It is possible that Iran simply does not feel that a robust SAM network is necessary. Given the aforementioned terrain constraints in some areas of the nation, as well as the lack of a large number of what may be regarded by the Iranian government as potential critical targets inside of Iran, the Persian nation may have simply taken a minimalist posture, relying on the S-200 for long-range defense and the other systems as point defense weapons to defend Iran's critical military and political infrastructure.

A...reason for the lack of deployed SAM systems could be that the shorter-ranged HQ-2 and HAWK systems are no longer viewed as being effective enough to warrant widespread use. HQ-2 sites are currently 33% occupied, with HAWK sites being approximately 50% occupied, perhaps signifying more faith in the HAWK system but still demonstrating a potential overall trend of perceived non-reliability. Iran does have reason to suspect the reliability of the HAWK SAM system against a Western opponent, as the missile was an American product and has been in widespread use throughout the West for decades. The HQ-2, however, should be regarded as potentially more reliable, as it is not a standard (and widely exploited) S-75 but rather a Chinese-produced weapon with which the West should have a lesser degree of technical familiarity insofar as electronic performance, if not physical performance, is concerned.

A high ratio of unoccupied sites could be due to financial reasons (lack of operating funds may have resulted in a number of batteries placed in storage) or simple attrition (they may have been expended or destroyed in the Iran-Iraq War), of course, but those facets of the equation cannot be examined through imagery analysis alone. It should be mentioned that one possible source of attrition for the HQ-2 system is the conversion of many missiles to Tondar-69 SSMs to complement CSS-8 SSMs (HQ-2 derivatives) obtained from China. Many batteries may also be out of service for modification to Sayyad-1 standard, which represents a modification of the HQ-2 design with some indigenous components.

### ***System Upgrades and Integration***

Iran surface-to-air missiles retain important military capabilities in spite of such limits, and they have been modernized to some degree. It is not clear from unclassified sources how many of the improvements the US has made to the IHawk in its MSIP and other programs over the years have leaked into Iranian hands, although it is certain that Iran has conducted a major covert espionage and purchasing effort. This is particularly critical because the Hawk is a US-made system and one where the US has unique knowledge of its vulnerabilities over any given generation. While it can be a highly capable system if fully modernized, it has limits even then, limits US and US-allied forces are well aware of. As an uncertain mix of technical upgrades, while dangerous, it is unlikely to inflict heavy losses on an attacking force.

It is also unclear how much Iran has modernized its other surface-to-air missile systems, but it has had extensive Russian and Chinese aid, and seems to have steadily modernized its Russian and Chinese supported systems over time. While the US developed effective countermeasures to most such systems during the Vietnam War, these weapons' range and potential upgrades to their electronics could enable Iran to engage US or Arab AWACS and contest air control. Their ranges, combined with Iran's ability to create overlapping fields of fire, could also complicate any air-defense suppression efforts.

Iran has modernized its radars and dedicated C<sup>4</sup>I systems, and seems to have both more modern radars and to have netted some 24 early warning radar sites, although some may not be active.<sup>127</sup> They cover Iran's borders, particularly its Gulf coast and border with Iraq, with internal sites near

Tehran, Natanz, Arak, and Isfahan. The strength of the network varies depending on the threat Iran perceives emanating from each direction, with what experts consider the best equipment in the west, a capable system in the south, and weaker to nonexistent network coverage in the east and north.

Iran has shown in its exercises that it does now operate a netted mix of radars and has linked them to its air force and surface-to-air missile units, but it is unclear how survivable, effective, and electronic warfare-resistant these systems are. The quality of their electronic warfare capabilities, systems integration, survivability, and ability to handle complex operations in real time is difficult to estimate with unclassified data but seems to be moderate to good in some areas for low intensity operations and poor to mediocre in complex, intense operations.

These developments show that Iran has put a major effort into creating a system that minimizes vulnerability to a technologically-superior opponent, focusing on multiple analog systems and human watchers connected by resilient communications channels. Instead of focusing on advanced systems that provide both real-time targeting information and a tempting target for air and cyber-attacks, Iran has adapted its C<sup>4</sup>I around survivability and attrition.

Iran has also modernized its tactics and paid close attention to the lesson of the Vietnam War, Balkans conflict, Gulf War in 1991, Iraq War in 2003, and other uses of land-based air defenses. At best, however, Iran faces major challenges in compensating for the age and gaps in its systems, their lack of real-world missile defense capability, having to create a patchwork system without the benefit of the technology base of a modern power, and the combat experience of states that have used such systems in the last decade.

Pop-up emitter and remote sensor tactics can help defeat modern countermeasures, but such systems are inherently far more vulnerable than IHawks, particularly when they are not part of a layered, integrated system with a low-altitude surface-to-air missile like the SA-3 and the mobile SA-6 system or its far more capable Russian successors.

Iran has, however, succeeded in turning to Russia to augment its largely obsolescent holdings of modern short-range air defense (SHORAD) systems. It has acquired some 29-32 operational Tor-M1 (SA-15 Gauntlet) and 10 Pantsyr S-1E (SA-22 Greyhound). These are capable short-range systems and can be used for point defense against cruise missiles and some precision-guided weapons – although there are no unclassified data on actual capability versus manufacturer claims. There also are no data on the kind of tactics, weapons, and countermeasures the US, Israel, and more advanced Gulf air forces could use to bypass, suppress, or destroy such systems.

According to IISS's 2012 *Military Balance*, Iran also has over 279 *Crotale* missiles and 30 *Rapiers*, two mobile systems that provide additional point-defense. However, both weapons are French in origin and are not only outdated but, as most Gulf states use one or both systems, are well-known to GCC and American pilots; it is unlikely they would be a significant threat to a concentrated and well-planned air campaign.

### ***The Ongoing Struggle to Modernize Iran's Surface-to-Air Missile and Surface-Based Missile Defenses***

Russia and China are now Iran's only potential sources of the modern long-range surface-to-air weapons it needs, and Iran has shown in the past it is well aware that it would take major deliveries of a new integrated air defense system based around the S-300 or S-400 surface-to-air missiles to



begin addressing Iran's strategic vulnerabilities to an aerial campaign. So far, neither Russia nor China has proved willing to sell the Russian version or Chinese modified version of such systems.

Iran has received some assistance from Russian and Chinese experts in modifying its overall network, and perhaps in improving the performance of individual SAM systems as well. Like other alleged cases of external support, it is difficult to determine the scope and nature of this assistance, in particular whether the aid is coming at an individual, corporate, or state level.

Iran has developed the ability to domestically manufacture high-frequency radars, including very-high frequency or ultra-high frequency surveillance radars. Such systems are believed to have a limited ability to track stealth aircraft under optimal conditions. While Iran has likely been unable to test its radar against actual American B-2s, F-22s, and F-35, further improvements in radar production and signal processing could erode America's technological edge.<sup>128</sup>

Experts suggest, however, that such external support has only provided incremental improvements and has not allowed Iran to overhaul its entire air defense network. Much of the outside expertise has allegedly been involved in improving guidance packages on current SAMs, replacing tracking systems that are already well-known to US and GCC pilots. They have also assisted in the maintenance of older weapons, prolonging the life of some systems that are over three decades old, and have also helped Iran develop the ability to domestically construct radars.

Iran still needs a long-range, modern surface-to-air and missile system that can cover the country and replace its aging Russian, US, and Chinese-supplied 1970s vintage systems. It has no hope of buying such weapons from any Western supplier and will face even greater challenges purchasing or domestically developing the integrated air defense network it would need to complement individual weapons.<sup>129</sup>

Iran's best hope so far has been to acquire Russian-derived SAMs. Russia, however, rejected the delivery of modern S-300PMU1 (SA-20 Gargoyle) long range SAMs in 2010 and, despite rumors to the contrary, has refused since then to reopen the deal. Although a future shift in Russian policy – or Chinese sale of its version – represents a potential risk, this leaves a critical gap in Iran's conventional capabilities that reinforces its weakness in airpower.

Iran has claimed it is compensating by upgrading its S-200 missile series and by building its own equivalent of S-300/S-400 called the Bavar 373, but its claims to date seem to be sharply exaggerated:<sup>130</sup> “With the changes being made to this system by our experts, the S-200 will be able to deal with threats at medium altitudes in addition to (threats) at high altitudes,” said Brigadier General Farzad Esmaili, commander of the Khatam-ol-Anbiya Air Defense Base in a September 2012 statement.<sup>131</sup>

At this meeting the General had announced that Iran was upgrading the S-200 long-range surface-to-air missile system. General Esmaili further noted that the upgraded missile system would have a new name because “the system will undergo systemic and structural modifications,”<sup>132</sup> thus highlighting the apparent technological and tactical improvements to the system.

According to a Jane's report in July 2013, this upgrade came in the form of developing S-200 mobility and a quicker response time against enemy aircraft. The General stated that, “By making our systems mobile, we are aiming to increase the agility of the defence system,” and went on to tout the system's increased reaction time and precision.<sup>133</sup> Further Iranian statements on its missile defense systems include:

Esmaeili also said on September 7, 2012 Iran was building a missile system more advanced than the Russian S-300 missile system, and that missile system, named the Bavar 373 (Belief 373), would replace the need for the S-300 missile system.

The IRGC displayed its new, domestically designed Ra'ad air medium ranged air to surface missile system during the annual military parade on Friday, which it said was designed to hit US aircraft, and which it said can be equipped with 'Taer' (Bird) missiles, which can trace and hit targets 50km in distance and 75,000 feet in altitude. "The system has been built in a bid to confront US aircraft and can hit targets 50km in distance and 75,000 feet in altitude," Commander of the IRGC Aerospace Force Brigadier General Amir Ali Hajizadeh. September 21, 2012.

Since 2007, Iran and Russia have disputed a previously completed arms deal to sell Russian S-300 surface to air missile defense systems, which was canceled by decree of Russian President Dmitry Medvedev in 2010. Russia canceled the deal as a part of their involvement with US and UN initiated sanctions against Iran due to their ongoing nuclear enrichment and suspected nuclear weapons programs. In response to the freeze of the sale, Iran has filed a \$4 billion lawsuit against Russia in the international arbitration court in Geneva.

Russia has twice attempted to assuage the Iranians by offering weapon system substitutes; first the Tor missile system and more recently the Antei-2500.<sup>134</sup> Both the Tor and Antei-2500 are missile defense systems mounted on mobile vehicles, with independent radar, computer, and firing systems. The Iranians refuse to accept the substitutes and continue to press for the more technologically advanced S-300PM system that was initially apart of the arms deal.

Open source intelligence suggests that Iran has only deployed limited upgrades of its Soviet-era SA-5/S-200 medium to high altitude long-range surface-to-air missiles. (The PO Almaz S-200 Angara/Vega/Dubna (Russian Ангара\Вера\Дубна), is called the SA-5 or Gammon by NATO.) Upgraded versions of the SA-5/S-200 s have been tested since 2008, but there are few unclassified data to support ambitious and probably grossly exaggerated Iranian claims for either the upgrades to the SA-5/S-200 or building its own versions of the S-300/S-400.<sup>135</sup> While the upgraded system may be more effective than the old SA-5/S-200, it is unlikely to pose a significant threat to American or Israeli aircraft as a long-range air-denial weapon.

As for the developmental Bavar-373 (Belief-373) system, Brigadier General Farzad Esmaili, said to reporters in Tehran on the National Day of Air Defense on September 3, 2012, that the system was "30 per cent complete" and that Iran could execute the project without foreign assistance.

Esmaili went on to say that he hoped the system would be finished by the end of the Iranian year, which would be March 2013, or by March 2014, and would be a "*powerful rival*" for the Russian surface-to-air system. Iran would deploy up to three different types of missiles, with "*higher capabilities than the S-300 in detecting, identifying and destroying targets.*"

Other Iranian statement made similar claims:

- "We are through with developing the threat-detection capability of the system and its sensitive parts have been manufactured in Iran. We have no problem for supplying the missiles needed for this system. With this powerful system in our hand, we would not think of S-300 anymore. Bavar 373 system is an important and completely indigenous achievement that can be a powerful rival for S-300." – Brigadier General Farzad Esmayeeli, Commander of Khatam ol-Anbia Air Defense Base, September 3, 2012.<sup>136</sup>
- "Manufacturing Bavar (Belief) 373 Missile System is in progress and all production needs have been supplied domestically. This project will soon enter its final stage (of production) and it will be much more advanced than the S-300 missile system."

- “The flaws and defects of the (Russian) S-300 system have been removed in the indigenous version of the system and its conceptual designing has finished.” – Brigadier General Farzad Esmayeeli, Commander of Khatam ol-Anbia Air Defense Base, September 22, 2011.
- “It is now several years that our defense industries researchers and experts have been designing a system whose capabilities are way beyond the S-300 missile system.”
- “The system has been designed based on our own operational needs.” – Colonel Mohammad Hossein Shamkhali, Deputy Commander of Khatam ol-Anbia Air Defense Base for Research and Self-Sufficiency Jihad, September 22, 2011.
- Defense minister Ahmad Vahidi told Iranian media at Sept. 22, 2010 that they will develop a similar domestic system by themselves: “We have planned to build a long-range air defense missile system similar to S-300. By God’s grace and by the Iranian engineers’ efforts, we will reach self-sufficiency in this regard.”
- “If they do not deliver S-300 defensive system to us, we have replacements and we can supply our operational requirements through innovative techniques and different designs.” – General Hassan Mansourian, Deputy Commander of Khatam ol-Anbia Air Defense Base for Coordination, July 6, 2010.<sup>137</sup>

To put such statements in context, Iran has made many claims for systems it later did not deploy, only deployed in token numbers, or deployed in forms that lacked anything like the capability claimed – such as a radarless version of a supposed SA-6 clone. It is far from clear Iran has the production base required to build a robust air defense network. Moreover, anecdotal unclassified reporting indicates that Iran lacks effective test and evaluation methods and has politicized its technology to the point it sometimes believes its own rhetoric. Exaggerated claims are a sin common to all weapons developers and military powers, but there are signs that Iran sins more than most.

Iran is making progress in developing and producing shorter-range systems, but its level of success is unclear. One such system is the new Ra’ad medium-range SAM, which is both a land- mobile system and a possible naval defense system. The Ra’ad is believed to have been developed from the Russian SA-11 with some outside assistance. Iranian-published information on the Ra’ad gives it performance data superior to that of the SA-11 – itself an outdated Soviet mobile medium-range SAM – of 50 km vs. 30 km range and 22 km vs. 14 km ceiling.<sup>138</sup>

Given Iran’s history of exaggerating accomplishments and overstating the technical specifications of its weapons, it is impossible to ascertain whether the Ra’ad is a modified SA-11 (that is, Iran hasn’t figured out how to construct more and will be restricted to upgrading prior imports), an SA-11 clone with a new name, an upgraded and indigenously produced system, or an entirely new system only cosmetically similar to the Buk-M2. It was likely designed to be the companion of the new long-range Bavar-373 SAM, adopting the Soviet tactic of pairing strategic and medium range systems for mutual protection.

Iran is also producing a copy of the French Crotale short-range surface-to-air missile called the *Ya Zahra*.

### ***Iran’s Capability for Land-based Air Defense***

There are too few readiness and effectiveness data on Iranian surface-to-air missile defenses and sensors – and how these would interact with Iran’s air force capabilities – to make definitive judgments as to its current effectiveness, and no one can predict the ways in which Iran’s surface-to-air missile defenses would affect a given scenario that might emerge between Iran, the US, and its Arab partners.

Some judgments do seem credible, even given the limits to the unclassified data now available:

- Much of Iran's surface-to-air missile defense system is dependent on emplaced fire units and sensors that cannot be moved without disrupting the integration of the system, and which become vulnerable in near-real time the moment they emit.
- Physically attacking the entire system would be difficult, but attacking given links and areas to create a corridor to penetrate deep into Iran would not be a major challenge.
- No matter how much progress Iran has made, it will be vulnerable to a mix of US targeting capabilities, electronic warfare, and suppression methods.
- Iran is a big country and has poor low altitude coverage of many areas. Many US fighters and the B-1 – as well as southern Gulf and Israeli strike fighters – could penetrate deeply and sometimes use stand-off air-to-surface missile range against a variety of Iranian targets.
- There are no unclassified maps of Iran's air defense coverage that seem fully accurate, although somewhat dated work by Sean O'Conner provides maps that are only several years old and are very helpful.<sup>139</sup> **Figure 11** only provides nominal data and ignores the effects of terrain, which will provide cover for any attacking aircraft. It seems likely, however, that Iran's size, topography, and lack of airborne radar would allow US and Arab aircraft freedom of operation in parts of Iranian airspace even without a systematic attack on Iran's air defense network; combined with in-flight refueling, this would give attackers the ability to strike remaining targets from multiple directions at will.
- While Israel might be fuel-refueling limited in flying complex penetration corridors from unpredictable routes, the US would face less serious problems.
- Iran would have serious problems in trying to operate both air defense aircraft and surface-based missiles in the same areas in an environment where the US used its full attack and electronic warfare capabilities.
- Many US capabilities are transferrable to southern Gulf fighters and air forces in the form of anti-radiation missiles, electronic warfare pods, and Saudi AWACS.
- US cruise missiles, F-22 fighters, and B-2 bombers could penetrate most Iranian defenses, and the F-35 will soon add to that capability.
- Once Iran's air defenses were suppressed, the US and Southern Gulf air forces would have considerable freedom to restrike Iran at any time. Iran could try to deploy covert replacements, but would face serious problems in terms of UAV and satellite dictation and would still be vulnerable to any SEAD technique that worked in the initial US and/or Southern Gulf SEAD attacks.
- Iran is aware of these vulnerabilities, but has so far been unable to respond to them due to effective sanctions on air defense systems and a weak industrial base and R&D program.

Unless Iran can correct the present weaknesses in its land-based air and missile defense systems, it will remain vulnerable and would not be able to deny its airspace to outside air and cruise missile threats, with little hope of surviving an intense, long-run air and missile campaign. The longer Iran is compelled to wait before acquiring S-300/S-400-like capabilities, the more obsolete its present systems become. Moreover, the US and GCC air forces have already learned some of the vulnerabilities of the S-300's from friendly states.

### *The Southern Gulf Problem and Surface-to-Air Missile Defense*

In comparison, **Figure 9** shows Saudi Arabia and the smaller Southern Gulf states do have a wide mix of far more modern surface-to-air missile assets than Iran, including upgraded IHawks, advanced versions of the Patriot with some missile defense capability, and more modern short-range systems than any Iranian system other than Iran's 29-32 operational Tor-M1s.

These systems are considerably more capable than most of Iran's holdings, but many have been deployed in ways that offer limited interoperability with other Gulf states. The Southern Gulf states have seriously limited their own capabilities. They have failed to fully integrate their surface-to-air and missile defenses, give them standard training and doctrine, create integrated plans for air defense modernization, or create integrated plans for acquiring effective wide area missile defense systems.

Their effectiveness is also limited in some cases by a lack of effective long-range sensors, battle management systems training and readiness, and strategic depth. The Southern Gulf states did stress the need for more coordination and interoperability in these areas of military cooperation at the Gulf Cooperation Council meeting in December 2011, but the question is whether this is more GCC rhetoric or whether it will become a reality.

Many of the physical assets exist, the US Combined Air Operations Center (CAOC) in Doha already shows what can be done, and the Saudi Air Force has a former joint command facility with the US that could be modified for GCC use. These military recommendations have been blocked by the feuding and tensions between Gulf leaders, and threaten to be a self-inflicted wound that in some ways is more dangerous than the enemy.

At the same time, the US can provide many capabilities that are not included in the totals for Gulf forces shown in **Figure 9**. Like the totals for air forces shown previously in **Figures 7 and 8** – these totals do not include the massive additional air, surface-to-air missile, and cruise missile defense forces the US could deploy. They also do not take account of US ability to provide the GCC states and Iraq with additional IS&R, maritime surveillance, air control and warning, missile defense data, and command and control capabilities.

In practice, US forces would give a combined Gulf and US force a decisive advantage. The US could reinforce the force with land-based surface-to-air and missile defense systems of its own and missile defense cruisers. This does, however, require a Southern Gulf willingness to call for such support. Much would depend on warning time and the quality and realism of contingency planning, simulations, and command post exercises.

The US and Gulf states may also adapt the missile and rocket suppression tactics that the Israel air force first developed to use against Hezbollah rockets during the war between Israel and the Hezbollah in 2006.<sup>140</sup> Israel developed a mix of sensors and on-call strike fighter equipped with precision guided missiles that were often able to take out rocket launchers after their first firing. These tactics have grown steadily more sophisticated since that time, and Israel has shown that missile defense can be combined with anti-missile offense in ways the US and Arab Gulf air forces are well equipped to adopt.

Making an effective and truly integrated Southern Gulf-wide system a reality would lay the ground work for what may become the even greater critical challenge of creating a fully integrated missile defense system. Modern air war and all aspects of air defense and missile defense badly need real time integration of all sensors, other IS&R assets, targeting and intelligence data, deconfliction of land and air systems, and the air role in the air-sea battle. None of these capabilities now really exist in spite of recommendations from the GCC military that date back to the early 1980s, and changes in technology and Iranian missile capability that vastly increase the requirement.

As is highlighted in Volume II, The Gulf states all face the prospect of needing layered defenses to deal with shorter-range systems. The area where the Southern Gulf states and US are potentially

vulnerable is what would happen if Iran launched massive medium to long-range rocket and missile attacks and escalated beyond the normal levels of “conventional combat.” The problems in GCC efforts to create an effective air and missile defense system have been touched upon earlier, and they remain a key issue in assessing the balance.

Here, the Israeli example may become the model the Gulf state will have to follow as Iran proliferates and improves its rockets and short-range missiles.

Israel is also developing two systems, however, which may provide a model for upgrading mid-term Gulf missile defenses.

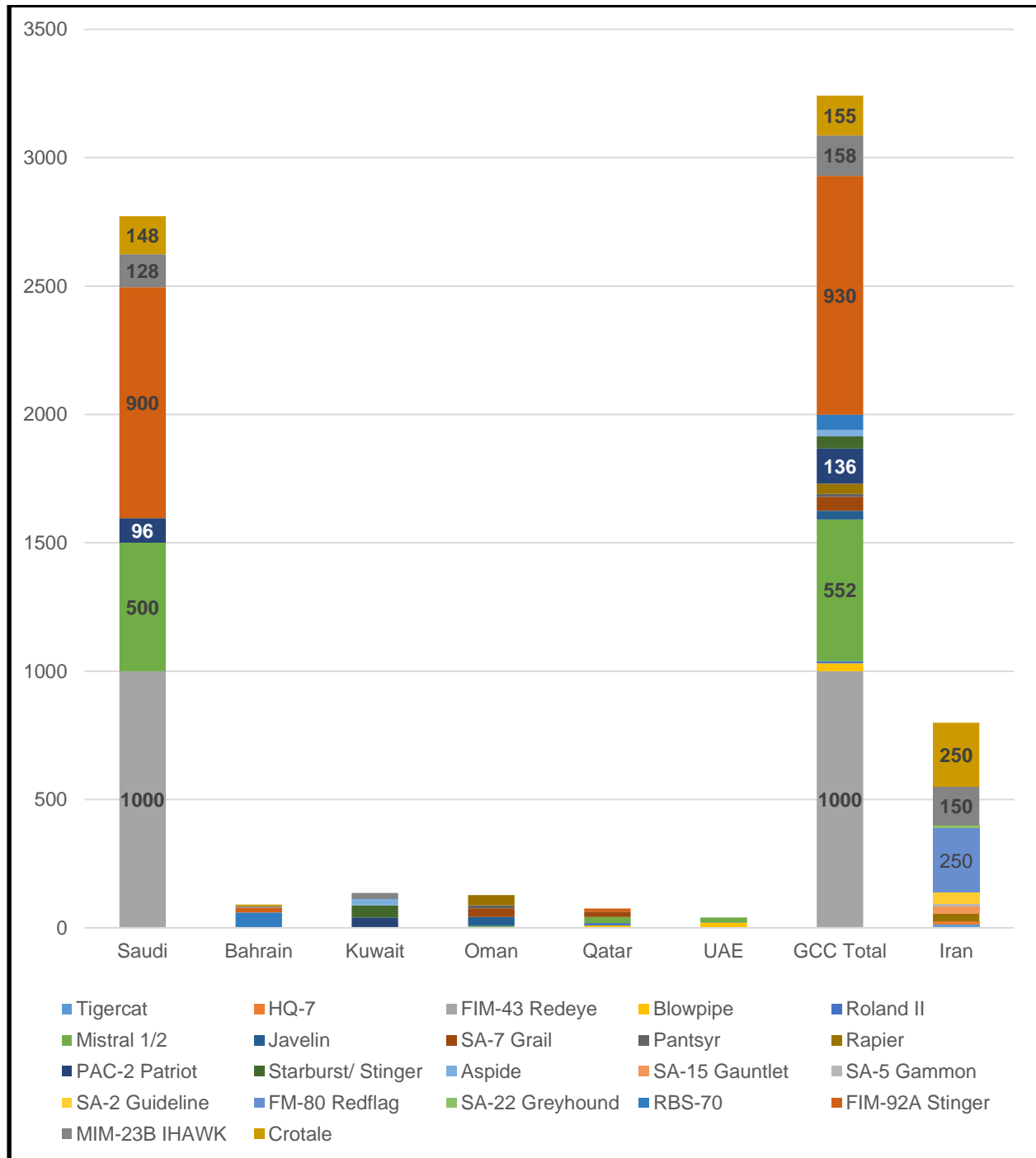
- *The Israel Iron Dome or Iron Cap* system is a mobile system that – like the Arrow – is partially US-funded under the United States–Israel Missile Defense Cooperation and Support Act (H.R. 5327). It is designed to defend against mortars, short-range artillery rockets and missiles firing from ranges of 4 to 70 kilometers, as well as VSHORAD Missiles System (up to 10 kilometers, and discriminate against those that would hit key populated or infrastructure targets. The system has four major components: Mobile detection and tracking radar - multi-mission radar (MMR); battle management and control unit, sensors, and mobile missile firing unit (MFU) with 20 "TAMIR" interceptors

Its manufacturer, Rafael, is seeking to grow the system to defend against firings up to 250 km and allow it to simultaneously intercept rockets and missiles come from different directions. Iron dome is also capable of anti-aircraft operations against targets flying up to 10,000 meters. It was used extensively against rockets being fired from the Gaza in 2012, and Israel claimed it achieved something like 90% success against the rockets that would have hit population centers out of some 400 fired during this period.<sup>141</sup>

- The second system is David's Sling or Magic Wand – a system in joint development by Raytheon and Rafael. It is a possible replacement for the IHawks in the IDF, and is an anti-ballistic and anti-cruise missile system with a range of 40 to 300 kilometers. It will use a larger, two-stage missile “Stunner” missile with both radar and electro-optical nose-cone sensors. It is in the final development stage and is due to be deployed in 2013 or 2014.<sup>142</sup>

While it is unlikely that Arab Gulf states will ever buy Israeli systems, they may buy similar systems made in the US. More importantly, Israel’s shorter-range defense systems illustrate what may be the shape of things to come in the Gulf as Iran makes more long-range artillery rockets and missiles that can fire across the Gulf or directly into neighboring states like Iraq and Kuwait.

**Figure 9: Comparative Land Based Air and Missile Defense Forces- Part One: Surface-to-Air Missiles (Graph)**



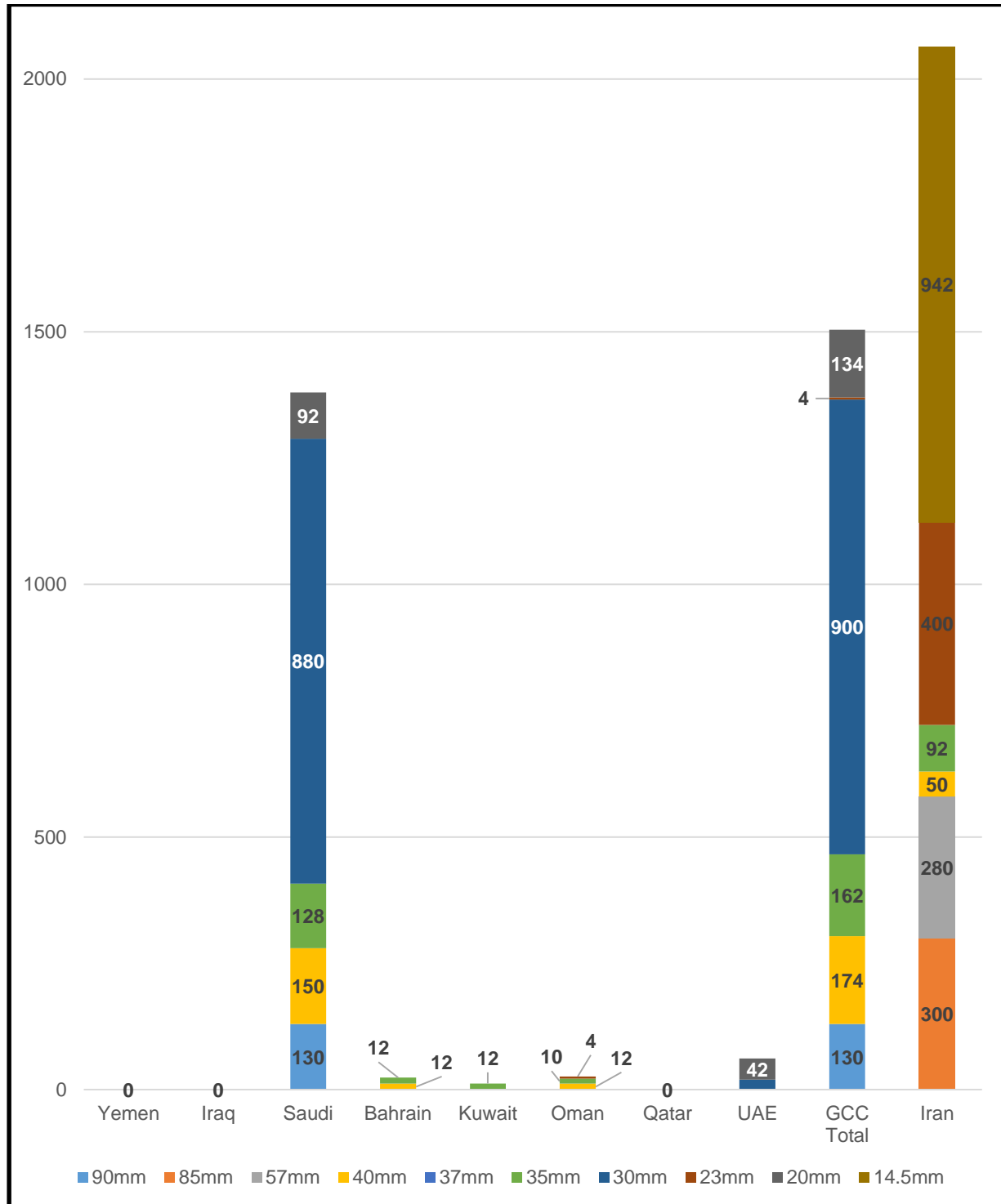
Source: Adapted from the IISS, Military Balance, 1999-2013

**Figure 9: Comparative Land Based Air and Missile Defense Forces- Part Two:  
Surface-to-Air Missiles (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Tigercat										15
HQ-7										10
FIM-43 Redeye			1000						1000	
Blowpipe							10	20	30	
Roland II							9		9	
Mistral 1/2			500			8	24	20	552	
Javelin						34			34	
SA-7 Grail						34	20		54	
Pantsyr						12			12	
Rapier						40			40	30
PAC-2 Patriot			96		40				136	
Starburst/ Stinger					48				48	
Aspide					24				24	
SA-15 Gauntlet										29
SA-5 Gammon										10
SA-2 Guideline										45
FM-80 Redflag										250
SA-22 Greyhound										10
RBS-70				60					60	
FIM-92A Stinger			900	18			12		930	
MIM-23B IHAWK			128	6	24				158	150
Crotale			148	7					155	250



Figure 9: Comparative Land Based Air and Missile Defense Forces- Part **Three**: Anti-Aircraft Guns (*Graph*)



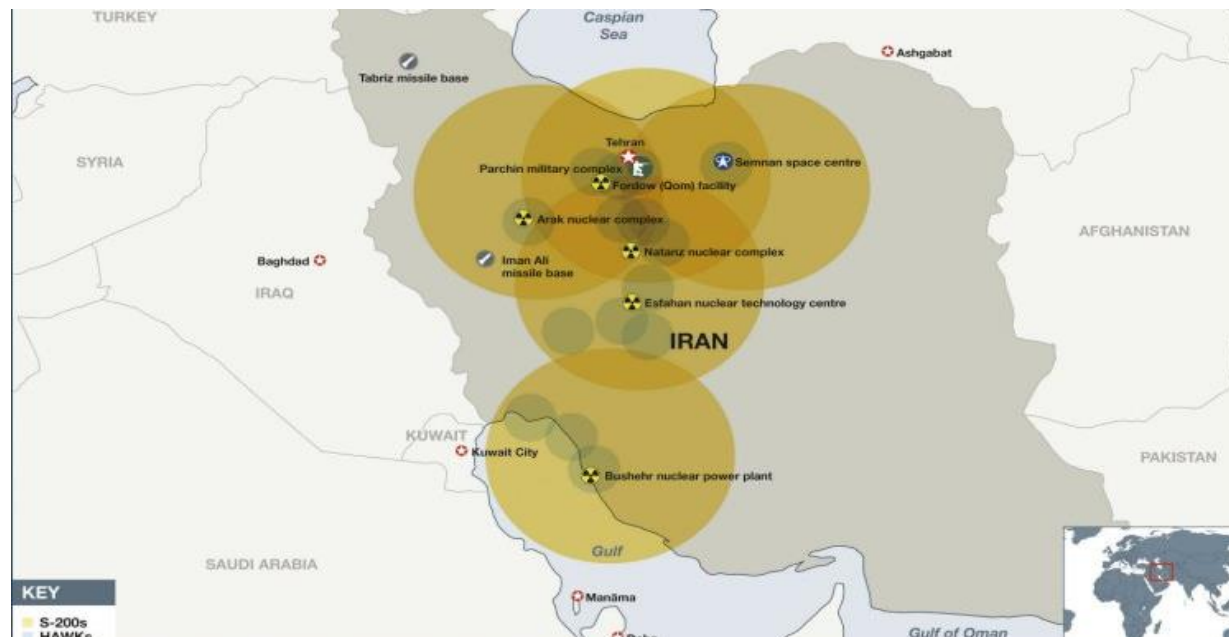
Source: Adapted from the IISS, *Military Balance*, 1999-2013

**Figure 9: Comparative Land Based Air and Missile Defense Forces- Part Four:  
Anti-Aircraft Guns (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
90mm			130						130	
85mm										300
57mm										280
40mm			150	12		12			174	50
37mm										
35mm			128	12	12	10			162	92
30mm			880					20	900	
23mm						4			4	400
20mm			92					42	134	
14.5mm										942

Source: Adapted from the IISS, Military Balance, 1999-2013

**Figure 10: Probable Iranian Surface-to-Air Missile Coverage**

*Relative to nuclear sites*

Source: *Jane's Defense Weekly*, "Studies in pre-emption," March 23, 2012. Available at: <https://janes.ihc.com/ExternalItems/Janes/images/mags/jdw/jdw2012/data/images/m1451589.jpg>

HQ-2 sites are red, HAWK sites are orange, S-200 sites are purple, 2K12 sites are bright green, and Tor-M1E sites are faded green. Other analysis suggests there are additional SAM sites along the southern coast, providing S-200 coverage into the Gulf and Gulf of Oman.

## US Conventional Naval Forces and Their Role in Asymmetric Warfare

The US Navy dominates sea power in the Gulf area. Its strength varies according to the level of tension, but in late 2012, the US Navy and Marine Corps deployed forces to defend the Gulf and Gulf of Oman; in the Indian Ocean and to fight in Afghanistan, to deal with violent extremists in Yemen, and to deal with piracy in the Indian Ocean and Red Sea. These forces included 14,963 men at sea and 8,997 ashore, for a total of 23,960.

The US has deployed up to three carrier task forces in the region, and its naval forces have extensive current combat experience – a US carrier now flies roughly one-third of the US combat sorties in Afghanistan. In late 2012, the US naval forces deployed in the region included 48 surface and subsurface ships. The major surface ships included a mix of two carriers, 8 guided missile cruisers and destroyers, and three major amphibious ships (LHD, LPD, LSD). They also included 210 aircraft – including 33 ARG/MEU (Amphibious Readiness Group/Marine Expeditionary Unit) aircraft and 30 land-based aircraft – with F-18s deployed at Sheikh Isa Air Base in Bahrain. These US forces are supported by one of the most advanced air-sea IS&R and battle management systems in the world – something US experts call the “unblinking eye.”

In the past, the 5<sup>th</sup> Fleet has focused on deploying larger ships like carriers and guided missile defense ships, but it is now deploying eight mine warfare ships (four on permanent station), all of

its 10 smaller patrol craft, and a special forces and mine warfare command ship. It is also developing plans for a “5<sup>th</sup> Fleet of the Future,” which would put more emphasis on mine warfare, Special Forces, and smaller ships to help regional states in “pier-to-pier” based engagements in asymmetric warfare.

The US cooperates closely with its Gulf friends and allies. The US Navy’s 5<sup>th</sup> Fleet (NAVCENT) conducts some 64 joint exercises a year, versus six for the US Air Force (AFCENT), five for the US Army (ARCENT), six Special Forces exercises, and six joint US CENTCOM exercises. As part of its bilateral and multilateral exercises, the US conducts an additional 270 smaller training and exercise engagements.

The US cooperates closely with the British navy – which now keeps an average of two surface ships and four minesweepers in the area – and the French Navy – which has a new naval facility in the UAE and deploys one surface ship and two mine sweepers. In addition, a number of allies have forces in the Red Sea and near Somalia on anti-piracy missions.

### **Southern Gulf vs. Iranian Naval Forces**

The size of Southern Gulf naval forces is shown in **Figures 11 to 14**. Most major surface ships are far more modern than those in the Iranian forces, and the GCC has far better basing facilities. Readiness and sustainability are, however, serious problems for some Gulf navies. The UAE is the only navy outside experts feel is becoming highly effective in terms of training and deployments, although several other Gulf navies are steadily improving.

The Saudi Navy – which has major resources – is felt to lag badly and to be failing to modernize at the rate required. Experts believe the readiness of its Gulf fleet is limited and that the Red Sea fleet is largely ineffective. This is partly a function of the Saudi emphasis on the air force, partly a lack of emphasis on mission effectiveness at the top, and partly a failure to fund modernization plans like the Saudi Naval Expansion Plan (SNEP).

Once again, the lack of integrated command and control, battle management, and IS&R systems are a problem. The US 5<sup>th</sup> Fleet can provide such capabilities and does so – but often on a bilateral basis rather than through an integrated GCC facility. Bahrain has offered to host such a GCC naval facility for the GCC, and the Saudi Air Force command center developed during the Gulf War in 190-1991 could be the nucleus of such an air facility, but no current plans exist to provide such a capability.

### **The Strengths and Weaknesses of Iran’s Naval Forces**

The Iranian Navy (IRIN) had some 18,000 men in 2012. According to IISS, this total included two marine brigades of some 2,600 men and a 2,000-man naval aviation force. It had bases at Abu Musa, Bandar Abbas, Bandar Anzali, Bander-e Khomeini, Bander-e Mahshahar, Bushehr, Chah Bahar, Farsi, Jask, Kharg Island, and Siri, while the IRGC’s naval branch (IRGCN) operates from Abu Musa, Bandar Abbas, Farsi, Halileh, Khorramshahr, and Larak.

#### ***Iranian Sea-Air Threats***

Iran learned during the “Tanker War” in 1987-1988 that it cannot compete with the US in conventional naval warfare and now faces an added threat from far more serious Southern Gulf naval forces. Iran’s naval forces are, however, still an important part of its capabilities to fight an air sea battle in the Gulf, if they are made part of a broader campaign of naval asymmetric warfare.

As the following sections of this report show, Iran has built up substantial capabilities for asymmetric warfare in the Gulf and the Arabian Sea, including submarines and submersibles, mine warfare capabilities, anti-ship missiles, marines and special forces, and a wide variety of smaller craft that can be used to swarm targets in the Gulf or in a battle of attrition.

Experts see a variety of Iranian air-sea threats in the Gulf – many of which go beyond the capabilities of the Iranian Navy per se and involve the Naval Branch of the IRGC. These “stacked threats” include:

- A mine warfare threat with Iranian stocks of 6,000+ mines, pre-staged mine deployments that can be rapidly dispersed, a wide range of platforms and the ability to deploy a low-cost, low tech, high impact forces that could be anonymous if mines were laid covertly or using commercial ships and small craft.
- An expanding inventory of coastal defense anti-ship missiles like the C-802 with steadily improving capabilities and ranges. Examples include the Hendijan PGG with C-802s and Peykapp III WPTG with C-704s – possibly supported by F-4Es with some variant of the C-700 or C-800 series – and Iran’s new domestically-produced *Khalij Fars*, stacked to overwhelm anti-missile systems.
- Submarines with 3 Kilo-class conventional submarines, and Yono-class midget submarines.
- A wide range of fast attack with a wide range of platforms, some with modern Chinese anti-ship missiles and wake homing torpedoes.
- New very high speed (70 knot), low observable boats like the Bladerunner 35 that carry high payloads of explosives and are designed for suicide missions.
- Groups or “clusters” of such smaller surface ships that can be quickly dispersed throughout the Iranian coast and can be used in groups to attack military or commercial surface vessels.
- Special forces, marines, and naval guards units that can be used to attack or raid offshore facilities and coastal targets, although Iran’s set of 13 landing ships restricts its amphibious reach.
- Covert forces like the Al Quds force that can be used to develop local forces and extremists for sabotage attacks on naval or other facilities.
- Efforts to develop rockets and ballistic missiles capable of homing on ships at much longer ranges like the *Khalij Fars*.
- Lack of over-the-horizon and general-purpose sensors, reducing range of fast-attack craft to visual range strikes coordinated by weakly-networked land-based C<sup>4</sup>ISR, compensated for by new domestically-produced radars and expanding HUMINT network within the Gulf.

Although the analysis that follows shows that Iran’s mix of corvettes, missile boats, and diesel-electric submarines is large enough to present a challenge during the initial phase of any major clash, Iran’s conventional fleet and air force are better suited to supporting its IRGC forces in asymmetric warfare. Iran probably does have some weapons systems or tactics the USN is not expecting, its ability to surprise US forces is hindered by pervasive intelligence efforts.

Its piecemeal modernization will enable its larger surface ships to perform in a conventional contest, but its improved missiles and torpedoes will not offset outdated guidance, battlefield awareness, and defensive systems –nor does Iran appear to expect them to. Experts feel Iran has no desire for a force-on-force engagement against the US Navy – the disparities between Iranian and US ships have only sharpened since the Tanker War – but some do see a role for larger ships as a form of deterrence and intimidation, and as useful in a localized conflict.

Iran has, however, developed a different type of naval rearmament encompassing midget submarines and patrol boats suited to hit-and-run raids to frigates and other major combatants. The

smaller ships appear designed for an unconventional campaign against the US Navy; the larger vessels, however, are better suited for intimidating Gulf neighbors and projecting Iranian influence against the comparatively weak GCC navies.

### *Submarines*

Iran has three *Kilo*-class submarines that it bought from Russia in the 1990s, and is building two small submarines on its own. Its *Kilo*-class submarines can fire long-range homing torpedoes and lay smart and conventional mines. It acquired its first *Ghadir*-class 120-150-ton midget submarine in 2007 and now has up to 17. It also has at least one 90-ton midget submarine, and eight small submersibles for inserting Special Forces and minelaying.

Iran's three Type 877EKM *Kilo*-class submarines and other submarines offset some of the weaknesses of its major surface forces. The *Kilo* is a relatively modern and quiet submarine that first became operational in 1980. Iran has completed a refit of one of its *Kilos*, and will likely begin modernizing the second if it believes the submarine will not be needed in the near future.

Iran does, however, have serious problems in maintaining its submarines, much less refitting them, and it has not provided realistic training. Its submarines rarely submerge in training or exercises, and many of Iran's drill claims are little more than propaganda. This leads some experts to feel that they would only pose a relatively limited and short-lived threat if they were actually deployed and used in combat.

This does not mean they can be ignored. Each *Kilo* has six 530-mm torpedo tubes, including two wire-guided torpedo tubes. Only one torpedo can be wire guided at a time. The *Kilo* can carry a mix of 18 homing and wire-guided torpedoes or 24 mines. Russian torpedoes have guidance systems including active sonar homing, passive homing, and wire guidance, but experts believe Iran may only have shorter range, wake-homing torpedoes. Some reports indicate that Iran bought over 1,000 modern Soviet mines along with the *Kilos* and that the mines were equipped with modern magnetic, acoustic, and pressure sensors.

Iran's ability to use its submarines to deliver mines and fire wake-homing torpedoes at ranges of up to 4,000-6,000 meters gives it a potential capability to strike in ways that are difficult to detect or deter. Its submarines can fire long-range homing torpedoes that can be used against tanker-sized targets and to attack slow-moving combat ships that are not on alert and/or lack sonars and countermeasures.

At the same time, many areas of the Gulf do not favor submarine operations. As is discussed in more detail later in this analysis, the Gulf is about 241,000 square kilometers in area and stretches 990 kilometers from the Shatt al-Arab to the Strait of Hormuz. It is about 340 kilometers wide at its maximum width and about 225 kilometers wide for most of its length. While heat patterns disturb surface sonars, they also disturb submarine sonars, and the advantage seems to be slightly in favor of sophisticated surface ships and maritime patrol aircraft; while submarines are forced to rely on only a single suite of sensors, their hunters have a wide range of detection systems and will likely suffer less from the chaotic conditions.

The Strait of Hormuz is about 180 kilometers long at the entrance to the Gulf, but has a minimum width of 39 kilometers and only the two deep-water channels are suitable for major surface ship or submarine operations. Further, a limited flow of fresh water and high evaporation makes the

Gulf extremely salty. This creates complex underwater currents in the main channels at the Strait of Hormuz and complicates both submarine operations and submarine detection.

The deeper parts of the Gulf are noisy enough to make ASW operations difficult, but large parts of the Gulf – including much of the southern Gulf on a line from Al Jubail across the tip of Qatar to about half way up the United Arab Emirates – are less than 20 meters deep. The water is deeper on the Iranian side, but the maximum depth of the Gulf – located about 30 kilometers south of Qeys Island – is still only 88 meters. This means that no point in the Gulf is deeper than the length of a *Los Angeles*-class nuclear submarine. The keel to tower height of such a submarine alone is 16 meters. Even smaller coastal submarines have maneuver and bottom suction problems, cannot hide in thermoclines, or take advantage of diving for concealment or self-protection. This may explain why Iran is planning to relocate its Kilo submarines from Bandar Abbas, inside the Gulf, to Chah Bahar in the Gulf of Oman and is deepening the navy facility at Chah Bahar.<sup>143</sup>

There are some areas with considerable noise, but not of a type that masks submarine noise from sophisticated ASW detection systems of the kind operated by the United States and the United Kingdom. Further, the minimum operating depth of the Kilo is 45 meters, and the limited depth of the area around the Straits can make submarine operations difficult. Submarines are easier to operate in the Gulf of Oman, which is noisy enough to make ASW operations difficult, but such deployments would expose the Kilos to operations by US and British nuclear attack submarines. It is unlikely that Iran's Kilos could survive for any length of time if hunted by a US or British Navy air-surface-SSN (nuclear submarine) hunter-killer team.<sup>144</sup> Iranian submarines – particularly its midget vessels – also face a limited combat radius. Even if they are capable of effective submerged operations, submarines cannot carry enough food, water, or weaponry to strike at commerce for an extended period of time; once in dock, they are vulnerable to air strikes or ASW forces deployed near harbors.

In any case, the effectiveness of Iran's Kilo-class submarines is likely to depend heavily on the degree of Western involvement in any ASW operation. If the Kilos do not face the US or British ASW forces, they could operate in or near the Gulf with considerable impunity. If they did face US and British forces, they might be able to attack a few tankers or conduct mining efforts, but are unlikely to survive extended combat. This makes the Kilos a weapon that may be more effective in threatening Gulf shipping, or as a remote minelayer, than in naval combat. Certainly, Iran's purchase of the Kilos has already received close attention from the southern Gulf States and convinced them that they must take Iran more seriously.

The data on IRIN midget submarine development and deployment are uncertain, and it is unclear exactly what submerged systems Iran is currently constructing. Nonetheless, IRIN appears to have imported the North Korean 130 ton *Yono* (*Yeono* or *Yugo*)-class submarine and begun to produce variants. It is a three man submarine with speeds of 10-11 knots surfaced and 4-8 knots submerged, a range of 550 nm surface and 55 nm submerged, and two 533 mm torpedo tubes. According to some reports, it can be packed with six to seven Special Forces personnel if the crew is reduced to two.<sup>145</sup>

Iran currently operates between 10 and 20 Ghadir midget submarines, one Nahang midget submarine, and approximately eight submerged diver delivery craft. Some reports indicate Iran has received the Hoot supercavitating rocket torpedo and modified some of its submarines to fire this high-speed torpedo.<sup>146</sup> Iran also is developing the Fateh, Besat, and/or Qaaem classes – all three have been publicly discussed as “in development” by various Iranian naval commanders, but

it is not expected that Iran will actually develop all three – as medium weight submarines with Kilo-class capabilities for green-water operations.<sup>147</sup>

Iranian midget submarines may provide a more serious threat within the Gulf than its Kilos. The Ghadirs and other Iranian midget submarines do drill more regularly than its Kilos and submerge more often in exercises. Rumors of serious losses in exercises are not confirmed by experts. Iranian midget submarines possess both torpedo-firing and mine-laying capabilities, and their small size may enable them to operate more effectively in the Strait or the Gulf. However, the capabilities of these boats are still unknown; much depends on their sensors and ability to hide from dedicated ASW platforms. If they are unable to mask propulsion noises, even the cluttered environment of the Gulf will not protect them from Western or even Gulf ASW assets.

Iran's Kilo force has faced similar problems to those encountered by the Iranian Air Force – years of stress and a high operational tempo combined with an industrial base and engineers unfamiliar with the original platform. These vessels require regular refurbishments and time in dry dock, in addition to a regular supply of spare parts. While Iran has mastered the construction techniques for building midget submarines, it still has not developed the industrial capacity or expertise to refit its larger Kilos.

As a result, the Kilos have been restricted in their exercises, often training on the surface and rarely with other naval vessels. While Iran has sufficient stocks of mines and torpedoes to fully supply its Kilos for a war of attrition in the Arabian Sea, the relaxed training schedule and logistical failures suggest that the Kilos will be unable to play a major role in naval combat.

Iran's midget submarines, however, are believed to be better prepared and suited for the style of combat that Iran is preparing for. These weapons, with their smaller payload of mines and torpedoes, train more often and in more realistic drills than the Kilos. They exercise near – but not in – the Strait, avoiding both the tricky currents and risk of international confrontation attendant upon military maneuvers in the restricted zone.

These systems would be effective in a prolonged war of attrition against both commercial and military vessels. While their smaller weapons load would probably restrict them to one attack per sortie, they would be able to use torpedoes or lay mines unpredictably across major tanker routes, target civilian vessels without sonar, and potentially threaten sonar-equipped warships in unfamiliar waters. In coordination with packs of fast-attack craft, surface-to-surface missiles, or other surface threats – although it is unclear if Iran has practiced such maneuvers – the midget submarines represent an effective component of Iran's broader overall asymmetric naval strategy.

### *Corvettes and Major Surface Ships*

As **Figures 11 to 14** show, Iran still a large Navy by the standards of the developing world. Sources differ over how many of Iran's older western-supplied ships like its one *Damavand*-class and two *Babr*-class destroyers should be still be counted as active, and how other Iranian ships should be classed.

Iran still has two Bayandor (PF103) class corvettes launched in 1963 and commissioned in 1964. Their weapons control, search/track radars, and sonars have not been fully modernized since the mid-1960s, although some aspects of the electronic warfare capabilities, communications, and battle management systems in the *Bayandor* seem to have been upgraded during 2001-2013.<sup>148</sup> Iran reportedly began modernizing these vessels with 76 mm deck guns, C-802 missiles, and



torpedo tubes in 2007. The C-802 is a sea-skimming missile with a range of 120 kilometers, a 165-kilogram warhead, and a maximum speed of Mach 0.9. While they must still be far below the quality of American frigates or corvettes, their weapons systems (if not sensors and electronic warfare systems) may now approach Southern Gulf standards.<sup>149</sup>

IISS and Jane's assessments also differ over the number and status of Iran's other ships and boats. The IISS estimate in the 2013 edition of its *Military Balance* was that Iran had six active corvettes. These include one 1,500-ton Iranian-built *Jamaran* or *Moudge*-class missile corvette (or light frigate) launched in 2010 with two more completing construction in 2013. (Other sources indicate one version called the *Moudge* entered service as early as 2005, and a second called the *Damavand* is already operating in the Caspian). These are armed with CSS-N-4 or CS-802 anti-ship missiles, Fajr (reverse engineered SM-1 air defense missiles), regular and long-range homing torpedoes, and Sikorsky SH-3 Sea King ASW helicopters. According to other sources, a 2,000-ton corvette or frigate called the *Sahan* is nearly completion.

Iran also has three more modern operational *Alvand* (Vosper Mark 5) class frigates: the *Alvand*, the *Alborz*, and the *Sabalan*. They were launched during 1967-1968 and commissioned during 1968-1969. Two have been upgraded to carry four Chinese C-802 anti-ship missiles each on twin launchers. Iran has also indigenously produced three frigates modeled on the *Alvand* – *Jamaran*, *Damavand* and *Sahand* – armed with C-802 missiles and surface-to-air missiles, as well as deck guns. The *Jamaran* has undertaken limited open-water activities, while the *Sahand* is still in dry dock awaiting completion. The *Damavand* has been assigned to the Caspian Sea. The sonar, radar, electronic warfare, and weapons-guidance systems of these ships are still unknown.<sup>150</sup>

### ***Missile Patrol Boats***

There is more agreement that the Iranian Navy still has three British supplied Vosper Mark 5 class corvettes it first received in 1971 and calls the *Alvand* class. These are 1,540-ton ships that have been refitted with C-802 anti-ship missiles. Iran also has two US-supplied 1,130-ton *Bayandor*-class frigates, one of which was being refitted but may have reentered service in the spring of 2013. These date back to 1964, but have been refitted with C-802 anti-ship missiles and a 76mm gun. Iran also has a small, US-supplied 580 ton corvette (missile patrol boat) refitted with C-802 missiles.

There also seems to be agreement that Iran has 14 active 275-ton *Kaman* class coastal armed missile patrol boats which date back to the late 1970s and early 1980s, but have been refitted with two to four C-802 missiles, and three of which have been heavily updated (Sometimes called the *Sina* class).

### ***Other Patrol Boats and Smaller Vessels***

The Iranian Navy also has four 70-ton *Zafar* patrol boats armed with either MLRS rocket launchers or C-701 anti-ship missiles, and four Chinese Cat-14 20-ton missile patrol boats armed with C-701 anti-ship missiles. In addition, the IISS estimates that Iran had 16 *Kashdom*, 3 *Kayvan*, 16 MkII, and 10 MkIII and 3 *Parvin* patrol boats ranging from 13 to 80-tons and armed with a mix of torpedoes, guns, and MLRS systems.

The IISS reports that Iran's Navy had three *Kajami* semi-submersible patrol boats, 14 aging hovercraft dating back to the Shah (some not operational), and some *Peykapp* fast attack boats.

### *Mine Warfare*

The Iranian Navy has adapted two *Hejaz* class LSTs for minelaying. It has two *Riazi*-class mine countermeasures boats, one *Shahroch* class minesweeper as a training ship in the Caspian, and two aging US-supplied MS-292-class minesweepers. Iran can, however, use virtually any surface ship for minelaying, including the dhows that cross the Gulf as trading vessels.

Iran can use its regular navy, naval guards, and any civilian ship to lay a variety of mines. It has invested in both its own mine development and Chinese mines, with an estimated stockpile of over 3,000 devices.<sup>151</sup> Its older mines are effective systems and at some \$6,000 a mine, are easy to disperse in large numbers with potentially devastating effective consequences for far most costly combat and commercial ships. According to various experts it has also acquired, reverse engineered, developed, and improved a range of “smart mines,” including bottom mines. It is preparing to lay them on both sides of the Strait, creating safe passages close to Iran’s shoreline through which its own and neutral (i.e. any Gulf state Iran chooses not to antagonize) tankers could sail.

The potential effectiveness of these mines was driven home by the September 2012 IMCMEX. In many ways, this exercise was a model of the kind of cooperation needed in the Gulf, and one that illustrated that a major exercise can be held at low cost if each participating nation pays its own way. The exercise was held during September 16-27 2012. It involved 33 countries, 2,730 personnel, 24 ships from six countries, 116 divers from eight countries, and 12 unmanned underwater vehicles from six countries. It used integrated C2, and tested Afloat Forward Staging Bases from three different countries deployed over an area of some 1,000 NM.

The course of the exercise is something of a case study in what needs to be done to improve the integration and effectiveness of US and GCC forces. It involved three days of analysis of the threat, planning, and technical analysis with officials, military, and contractors from the GCC, NATO countries and Asian countries. There was then a seven day at-sea phase – sometimes involving the first multilateral exercise for a given country. Seventeen trial MH-53 minesweeping (MSW) helicopter missions were flown, and 91 mine countermeasure (MCM) missions under both day and night conditions were simulated. An integrated situational awareness was preserved through the CENTRIXS system, and for the first time, a single Mine Warfare Commander operated the exercise.

While the results of this exercise have not been published, reports<sup>152</sup> suggest that the allied minesweeping forces from some 30 countries performed well in terms of coordination and gained a great deal of experience, but encountered serious problems because of different national caveats over how their forces could be used and commanded, and initial problems in working together because of a lack of prior experience. The iron law of war that no force can really do in combat what it does not do in practice seems to have been validated yet again.

There also were significant problems in removing the simulated mines from the seabed. A PBS report quotes a consultant and former Navy officer in claiming that the participants found only half their targets. The US Navy disputes the use of “percent of mines found” as a suitable metric, with Navy spokesmen highlighting the efficient way navies from 30 nations cooperated in the exercise. They also point out that it was both an experiment and a learning process, and that in the real world the US would have mapped the bottom of many key areas to enable it to locate any sudden

appearance of a new mine, and US doctrine calls for constant surveillance of suspect ships and destroying them the moment they begin mine laying activity.

This result emphasizes the difficulty of tracking and destroying mines even with a large task force under peacetime conditions. Mine warfare could give a significant edge to the strategic aggressor, and the US has not yet learned how to negate Iran's lead. This weakness further underpins the logic of retaliation and escalation, as any American failure to counter Iranian mines in the event of war would force the US to respond with other strikes.

While cooperation will undoubtedly be critical in further counter-mine work, as will the willingness to act decisively the moment Iranian minelaying begins, practical success will be judged by the protection of tankers, other commercial vessels, and combat ships. The key measure of effectiveness will be the number of ships that are hit by mines. Moreover, even the threat of mining could have a major impact on shipping and the cost of imports and energy exports.

More Gulf, British, and French mine hunting and sweeping resources are needed. The US Navy has underfunded mine warfare efforts consistently in the past and has only begun revamping its mine detection capabilities. At present, the US Navy can only deploy eight minesweepers in the Gulf, and only four are currently assigned full time. Helicopter minesweeping using MH-53 helicopters and towed sonar sleds has not proved as effective as previously expected.

The US does, however, already have help from the British and French navies, and Saudi Arabia can deploy up to four British-made minesweepers. The US is also adding crews to allow its minesweepers in the Gulf to deploy longer with less crew strain, and plans to introduce the Littoral Combat Ship's mine-warfare package in 2014.<sup>153</sup>

The US is also shifting from hunting to mapping the bottom of the Gulf to detect any change in the array of objects on the bottom. It is deploying new unmanned or robotic mine hunting and killing systems. The US expects to deploy new Mark 18 anti-mine, torpedo-shaped underwater vehicles in January 2013. It is introducing other unmanned submersibles, including the Sea Fox mine neutralization system, which is a relatively cheap, expendable system that can detonate a mine directly.<sup>154</sup>

### ***Amphibious***

The Iranian Navy also has three *Farsi*-class landing ship-medium (LSMs) with capacity of nine tanks and 140 troops. It has four *Hengam*-class landing ship tank (LSTs) with a capacity nine tanks; 225 troops; and six *Fouque*-class landing ship logistics (LSLs). It has 10 landing craft, and some 47 support and logistics ships. These could move and support an operation of at least brigade size, but Iran does not train for such operations.

### ***Hovercraft***

Iran has five to six BH-7 and seven to eight SRN-6 hovercraft. The IISS places these in the Iranian Navy but other sources place them in the naval branch of the IRGC. About half of these hovercrafts may be operational. They are capable of speeds of up to 60–70 knots. They are lightly armed and vulnerable, but their high speed makes them useful for many reconnaissance and unconventional warfare missions. They can rapidly land troops on suitable beaches, but the beaching angle is critical and some beaches are not appropriate.

### *Naval Aviation*

The Iran Navy's 2,600 man naval aviation branch is one of the few air elements in any Gulf navy, with two to three Orion 3PF maritime patrol aircraft (one possibly non-operational plus a possible fourth of uncertain status) Jane's only mentions two Orions, some 16 light transport aircraft, and an inventory of 13 armed helicopters (10 SH-3D and six RH-53D), although their operational status is uncertain. Its war plans include using the SH-3Ds for anti-submarine warfare missions—although experts feel Iran only exercises and uses helicopters in resupply and logistic missions to areas like its offshore and island IS&R facilities.

### *Naval Guards*

The naval branch of the IRGC -- or IRGCN-- continues to grow. The IRGCN is organized to present asymmetric threats that include capabilities that can support a battle of attrition, and focused, limited clashes throughout the Gulf that would not cripple Iran's own sea lines of communication (SLOCs) or necessarily provoke major US reprisals

In 2013, the IRGCN had 10 171-ton Chinese-built *Houdong*-class missile patrol craft with four C-802s each, which were delivered in the mid-1990s -- and three support ships. It had large numbers of additional coastal and inshore patrol craft. Some estimates credited the IRGCN with 5 *China Cats*, 10 *Thondor* with two twin C-802 launchers, 25 *Peykaap II* with two single C-701 launchers, 15 *Peykaap I* fast attack boats potentially armed with twin torpedo tubes, 10 *Tir* class fast patrol boats with twin torpedo tubes and a machine gun, 10 *Pashe* fast patrol boats with twin 23mm ZSU-23 cannon and search radar, and roughly 20 *Ghaem* patrol boats with small arms and an extended duration deployment capability.

Jane's estimates that the IRGCN had 37 coastal patrol boats – 17 *Peykaap I*, 10 *Pashe*, and 10 *Ghaem* – along with 150 inshore patrol craft – 30 *Murce* (one MLR system and machine gun), 100 *Ashura I* (small vessel with one machine gun, center space for a mine or rocket launcher, and small arms), and 20 *Boghammar* (one machine gun and MLR system normally, but wide range of customized units are now believed to be in use).<sup>155</sup>

The *Kayvian*, *Parvin*, MkII, MkIII, and *Ghaem* patrol boats are thought to be inshore boats, lacking both missiles and the ability to operate independently. Most of these craft are operational and can be effective in patrol missions. They lack sophisticated weapon systems or air defenses, other than machine guns and SA-7s and SA-14s. The IRGCN also seems to have four landing ships. The IISS estimates it has 2 *Hejaz* with mine-laying capacity and 2 MIG-S-5000s.

### *Anti-Ship Missile Forces*

Iran depends heavily on its coastal, island, and ship-borne anti-ship missile forces to make up for its lack of airpower and modern major surface vessels. Iran's Western-supplied missiles are now all beyond their shelf life, and their operational status is uncertain. Iranian forces are now equipped largely with C-700 or C-800 series anti-ship missiles Iran bought from the People's Republic of China (PRC), or now produces indigenously. They have replaced most Western-supplied missiles with Chinese designs.

For example, the Iranian Navy's missile patrol boats include 13 operational 275-ton French-made *Combattante II* (*Kaman*-class) fast attack boats, with four currently under construction. These boats are reported to be armed with two to four C-802 Sardine anti-ship missiles, one 76-mm gun, and to have maximum speeds of 37.5 knots. According to Jane's Naval Guide, nine of these are

from the original French shipment during the early 1980s, while Iran has constructed another four with comparable equipment.

The *Kaman*-class fast attack boats were originally armed with four US Harpoon missiles, but their Harpoons may no longer be operational. At least five had been successfully converted to launchers carrying two to four C-801/C-802s. Iran supplied the C-802s that Hezbollah successfully used against one of Israel's most modern Sa'ar Class-5 missile ships during the fighting in 2006.

The terminology for the C-801 and C-802 series of missiles in Iranian naval forces is confusing and sources contradict each other as to the variant used on given Iranian platforms. Some sources refer to all of these missiles as part of the CSS-N-4/YJ-1 series.<sup>156</sup>

Iran now is believed to have at least 100 C-801s and C-802s, and to be able to produce them and the C-700 series.

One source notes that Iran may have imported up to 100 C-801s and eight launchers in 1987-1988 and built its arsenal to 200 by 1994. It since has developed the ability to produce the C-801 indigenously (under the designation "Tondar").<sup>157</sup> Another source notes that Iran may have deployed its C-701 missiles at launching bases under construction at Bandar Abbas, Bandar Lengeh, Bushehr, and Bandar Khomeini.<sup>158</sup> It is also clear that Iran has refitted US ships once equipped with Harpoon with the C-800 series.

Iran has sought to buy more advanced anti-ship missiles and anti-ship missile production facilities from Russia, North Korea, and China, and possibly has even attempted to obtain Chinese-made missile armed frigates. Some sources have claimed that Iran has bought eight Soviet-made SS-N-22 "Sunburn" or "Sunburst" anti-ship missile launch units from Ukraine and has deployed them near the Strait of Hormuz. However, US experts have not seen evidence of such a purchase and doubt that Iran has operational holdings of such systems. The "SS-N-22" is also a title that actually applies to two different modern long-range supersonic sea skimming systems – the P-270 Moskit (also called the Kh-15 or 3M80) and the P80 or P-100 Zubi/Onika.

Iran regularly announces that it has deployed new anti-ship missiles or is developing them. For example, it claims to have successfully developed over-the-horizon missile targeting capabilities, building variants of the Fateh-110 and Shahab with homing guidance systems for use in anti-ship warfare. This claim appears to be borne out to some extent by the development of by *Khalij Fars* -- an upgraded Fateh-110 with a rudimentary seeking and steering mechanism for targeting ships. While its real-world capabilities are unknown, it would represent a valuable layer of Iran's anti-ship "stack." However, Iran makes so many claims for so many systems, it is impossible to distinguish propaganda from reality,

### ***The Shift to Asymmetric Warfare***

This complex mix of shifts in the forces of Iran's Navy and Naval Guards explains why Iranian naval doctrine and exercises now emphasize asymmetric tactics. Iran emphasizes a mix of smaller systems that can target either expensive, vulnerable merchant traffic – essentially an improved version of the 1984-1988 Tanker War – or conventional US naval vessels attempting to operate in the Strait of Hormuz or the Gulf.

Iran also recognizes the vulnerabilities created by operating with two different navies – the IRIN and IRGCN occasionally traded fire during the Iran-Iraq War. According to sources like *Jane's Defense Weekly*, the regular and IRGC fleets have divided geographic responsibility, with the latter

taking control of the Gulf and Strait of Hormuz, and the former responsible for everything else. This permits the IRIN to deploy its conventional forces in the open water – which they are designed for – while giving the IRGCN control in the Gulf.

The IRGCN now operates four naval defense zones in the Gulf, and its commander – Mohammad Ali Jafari – announced a fifth zone at the port of Bandar Lengeh in November 2012. Jafari stated that, “The fifth zone of the Guard’s naval force is one of the naval defense chains which is in particular responsible for the defense of the Iranian islands in the Gulf.” This reflects both the vulnerability of the surface Navy and a growing IRGCN emphasis on “clustering” small groups of forces that can be easily dispersed throughout the Gulf and used with limited command and control and coordination.

Iran learned in 1987-1988, and in years of exercises that followed, that it cannot concentrate large numbers of small forces for “swarming” and exercise effective command and control. It must be able to disperse them as much as possible, and may have to keep larger conventional naval surface forces in port or outside any combat action to avoid having them destroyed. Recent accounts suggest Iran has encountered difficulties coordinating more than ten boats at a time. These packs would be capable of targeting tankers or isolated military vessels, or harassing multiple warships in hit-and-run strikes. By focusing on smaller fleets, Iran is able both to preserve its forces for a war of attrition and retain the command and control necessary to target individual ships, potentially avoiding the random strikes that led the Tanker War to escalate.

Since the end of the Iran-Iraq War, Iran has attempted to compensate for the weaknesses of its surface fleet by obtaining new anti-ship missiles and missile patrol craft from China, and developing its own long-range anti-ship missiles and a ballistic missile with anti-ship capabilities. It acquired and then cloned midget submarines from North Korea, and bought three *Kilo*-class submarines from Russia. It bought and reverse-engineered more modern “smart” mines, and also purchased wake-homing torpedoes.

Iran has simultaneously expanded the capabilities of the naval branch of the IRGC, developed its fast attack craft, and upgraded some of its older surface ships. Iran’s exercises have also included a growing number of joint and combined arms exercises with the land forces and the air force – although such jointness is limited and Iran still has problems in coordinating the elements of its individual services.

Iran has improved its ports and strengthened its air defenses, while obtaining some logistic and technical support from nations like India and Pakistan. It has attempted to participate in joint exercises, joining the Indian Navy and Pakistani Navy for small-scale training. The IRIN has also deployed off the coast of Africa for anti-piracy operations, giving the navy experience with extended blue water deployments.<sup>159</sup> Furthermore, it has engaged in supporting Russian deployments to Bandar Abbas and port visits as far afield as Sri Lanka.<sup>160</sup>

### ***Iranian Officers and Officials on Iran’s Naval Posture in the Gulf***

As has been the case with other aspects of the balance, Iranian officials and senior officers have made far broader claims about Iran’s capabilities for naval warfare, and that Iran is buying new systems that are altering the naval balance in the Gulf. These claims often differ sharply from the previous analysis, and while many are propaganda, they still need to be considered:

- Deputy Chairman of Iran's Armed Forces, Gholam Ali Rashid, said at a conference of Iranian naval commanders, "The increase in the level of strategic confrontation between Iran and the United States over the past decade, coupled with recent developments in the regions that are attributed to the Islamic Awakening, have presented Iran with numerous threats and opportunities. The type and nature of the threats against Iran change based on the organized and long-term presence of the US in the region. In a war, Iran will be the country to determine the enemy's fate in the battle arena, and Iran's armed forces, particularly the navy, will suppress any attack by the enemy. Should Iran's enemies make this type of mistake, their fate will be that of Saddam Hussein and his regime."<sup>161</sup>
- "Our missiles can be launched from boats with speeds of over 30 knots, and these missiles include Zafar, Nasr, Nour and Qader." He added that Qadir missiles will also be added to the list in near future. He underlined Iran's growing missile capability as well as the special capabilities of Iran's cruise and coast-to-sea missiles, and underlined high flexibility in the tactical use and missions of these missiles. "The tactical use (and goals) of these missiles can vary in accordance with the type of threat." Deputy Defense Minister General Mehdi Farah.<sup>162</sup>
- "Since the IRGC has been deployed in the Strait of Hormuz and assumed the full responsibility for (security) in the Persian Gulf waters, the (US) warships and vessels which were passing through the strait have changed their route towards the Southern coasts of the Persian Gulf after they pass through the strait in a way that every military vessel that intends to enter the Persian Gulf keeps close to the Southern coasts of the Persian Gulf and enters the region." - Alireza Tangsiri, Lieutenant Commander of the IRGC Navy, July 23, 2012.
- "If the sanctions continue, the countries that have imposed sanctions have no right to cross the Strait of Hormuz without harm," Javad Karimi Qodoosi, Majlis Member, July 21, 2012.<sup>163</sup>
- "Today over 3,000 boats are in the Persian Gulf and involved in commerce, constantly passing by America's naval ships... The question is how can America engage us in war not knowing how it will get hit next? If they dare to take up arms, they will see how they will regret their act." - Morteza Mirban, Deputy Commander of the IRGC's Ground Forces.<sup>164</sup>
- "If for any reason the Americans decide to attack Iran and we go to war, the fate of the war will be decided at this [naval] arena, as American capacities are based on naval force, and due to the far distance of their lands from our country, all American ground and air forces are located on their ships." "All throughout the world, Iran is the only country which has speed vessels with the ability of firing (rockets and missiles) at high speed... We now have speedboats which can launch missiles as they traverse at a speed over 60 knots... Speedboats equipped with torpedoes and electronic systems that exist nowhere in the world except in Iran... Many countries have not entered this field, and some countries like the US abandoned their attempt after a short time." IRGC Navy Commander, Ali Fadavi.<sup>165</sup>
- "Should the enemies desire to use the method and spirit of threats, we will naturally also threaten them. The (military) exercise by the armed forces of the Islamic Republic of Iran's Islamic Revolution, in fact, expresses the will to act against various types of threats that are targeting our national security." - Hossein Salami, Revolutionary Guards Deputy.<sup>166</sup>
- "[T]he recent statements made by the US and the West about the Strait of Hormuz shows that they are frightened by the awe of the (Islamic) Revolution, otherwise the Iranian nation considers the Strait of Hormuz as the strait of peace. However, the Iranian nation is determined to cut the hand of those who seek adventurism in the Persian Gulf, the Sea of Oman and the Strait of Hormuz."<sup>167</sup> - Ali Larijani, Speaker of Iranian Parliament.
- "Tehran will not remain indifferent to US mischief in the region if Washington tries to cause problems for regional countries. The Strait of Hormuz is a region of peace and Iran has protected its peace for centuries and will continue to do so in order to maintain calm in it,"-Ali Larijani, Speaker of Iranian Parliament, January 31, 2012. <sup>168</sup>
- "The US has given a role to Saudi Arabia, Qatar and Turkey to direct the regional developments in a way that they move towards these countries' interests in line with the US policies and opposite to Iran's policies. Owing to the fact that Iran's Islamic Revolution serves as a role model for the regional and world nations in their fight against the tyranny of their rulers and arrogant powers, the US and its allies are attempting to

prevent Tehran's further political influence in the region." - Major General Yahya Rahim Safavi, Senior Military Aide to the Supreme Leader.<sup>169</sup>

- "The United States did not dare to direct its aircraft carrier through the Strait of Hormuz alone; this is why the carrier was "escorted" by military vessels of other nations. If the Strait is closed, the aircraft carriers will become the war booty of Iran." - Javad Karimi Qodousi, parliamentary National Security Committee member.<sup>170</sup>
- "There is no decision to block and close the Strait of Hormuz unless Iran is threatened seriously and somebody wants to tighten the noose. All the options are on the table."- Mohammad Khazaei, Iranian Ambassador to the United Nations.<sup>171</sup>
- "Our capability to provide security in the region, specially the Strait of Hormuz during sensitive times, will not experience any change due to the western warships' trafficking in the region." -Gholam Reza Karami, Iranian lawmaker and Chairman of the Parliamentary Defense Committee.<sup>172</sup>
- "Today the Islamic Republic of Iran has full domination over the region and controls all movements within it." - Navy Rear Admiral Ali Fadavi, Commander of Iran's Islamic Revolution Guards Corps (IRGC).<sup>173</sup>
- "Iran has total control over the strategic waterway. Closing the Strait of Hormuz is very easy for Iranian naval forces." -Rear Admiral Habibollah Sayyari, Iran's naval commander.<sup>174</sup>
- "If they impose sanctions on Iran's oil exports, then even one drop of oil cannot flow from the Strait of Hormuz." - Mohammad-Reza Rahimi, Iran's first vice president.<sup>175</sup>
- "Closure of the Strait of Hormuz is not on the Islamic Republic of Iran's agenda (at present), but if threats against Iran come to trample upon the rights of our nation while others use the strait for exporting their oil, then Iran will be entitled to the right to close the Strait of Hormuz. The international conventions reserve such rights for the Islamic Republic of Iran as well. For the time being, the Islamic Republic of Iran has not decided to close the strait, but this (closing the strait) depends on the conditions of the region." - Mohammad Taqi Rahbar, Iranian lawmaker.<sup>176</sup>
- "According to the international laws, including Paragraph 4 of Article 14 of the Geneva Convention, in case Iranian oil is sanctioned, we will not allow even a single barrel of oil to pass through to reach the hostile countries". -Isa Jafari, Senior Iranian lawmaker.<sup>177</sup>
- "The new equipment (submarines) are smaller and faster under water and operate similar to our small speedboats, which terrify our enemies on the surface.  
We are trying to increase our operational range and reach enemy vessels there [in the Indian Ocean]." – Major General Mohammed Ali Jafari, Commander of the IRGC.<sup>178</sup>
- "Underwater is a good area (of activity) that is used by our forces but in an asymmetric and small-scale form, meaning that we are not seeking to build large and giant submarines since they are vulnerable.  
These new high-speed small-sized equipments [sic] (vessels) will have an underwater function similar to the performance of small speedboats in seas, an ability that has worried the enemy.  
Accordingly, we must use the same asymmetric approaches in building tools and equipments and even in defining our tactics.  
In addition to rapid transfer of forces and detection of the enemy's surface and subsurface vessels, these submarines can identify military targets and carry Special Forces, while they also enjoy rapid swamp power and have radar (sonar) evading capability.  
The system enjoys high-precision in targeting." – Major General Mohammed Ali Jafari, Commander of the IRGC.<sup>179</sup>
- "And now the Navy plans to widen its presence in the high seas in a bid to protect the country's interests and provide security for the country's shipping lines.



In case of a final approval, the Army's naval fleet will be dispatched to the Atlantic Ocean." – Rear Admiral Habibollah Sayyari, Commander of Iran's Navy.<sup>180</sup>

- "Missile frigates and destroyers have been equipped with these missiles since long time ago and the surface-to-surface missiles of the logistic vessels were successfully tested and assessed during the recent naval war games, dubbed as Joushan.

Right now we are mounting air-defense missile systems onto a number of surface vessels. Other units will also be equipped with these systems after final tests." – Rear Admiral Seyed Mahmoud Mousavi, Deputy Commander for Operations of Iran's Navy.<sup>181</sup>

- "The Navy is in a good status in terms of training and equipments [sic], and the Navy is equipped with new weapons and systems every year.

The range of the Navy's missiles and its coastal defense power are increasing on a daily basis." Rear Admiral Habibollah Sayyari, Commander of Iran's Navy.<sup>182</sup>

- "By dispatching the Iranian navy ships to the Mediterranean Sea and through the Suez Canal, the Iranian Navy has increased the radius of its operations to 7,000 kilometers." – Commander Fariborz Ghaderpanah, Commander of Iran's First Naval Zone.<sup>183</sup>
- "The Islamic Republic of Iran's Jammaman destroyer, Sina missile frigate and different submarines are examples of the products that have already been manufactured (domestically) shown powerful in accomplishing missions in the sea." – Rear Admiral Habibollah Sayyari, Commander of Iran's Navy.<sup>184</sup>

### **The US, the Southern Gulf, and Iran's Capability for Conventional Naval Combat**

For all its propaganda-like character, Iran's military rhetoric cannot be disregarded. Moreover, as the scenario analysis of Iran's asymmetric warfare capabilities later in this report shows, Iran's Navy can – at a minimum – play a significant role in intimidating other states and in threatening petroleum exports through the Gulf. The US Secretary of Defense notes in his annual report on Iranian forces to Congress, issued on June 29, 2012, that,<sup>185</sup>

Iran's conventional capabilities continue to improve. Naval forces are adding new ships and submarines while expanding bases on the Gulf of Oman, the Persian Gulf, and the Caspian Sea. In addition, Iran continues to expand the breadth of its naval operations and in 2011 and early 2012 deployed two separate groups to the Mediterranean.

At the same time, Iran's navy is as vulnerable to a US or US-Gulf attack or counterattack as every other element of Iran's forces.<sup>186</sup> While it would be costly to destroy Iran's capabilities in an all-out naval conflict, and the political consequences would be subject to the law of unintended consequences, Iran would likely face the destruction of its navy and strategic defeat in any extended campaign at sea.

The US ability to dominate any escalation – including attacks on Iranian bases and superior technology in any conventional engagement – would allow it to apply overwhelming pressure if it chose to and had the support of its Southern Gulf partners.

While pre-conflict mining, missile swarms, and effective submarine tactics might allow Iran to inflict casualties on the US Navy, Gulf navies, and merchant ships, the IRIN and IRGCN would be defeated. As with its air force, the IRIN and IRGCN might be able to prolong the conflict through passive defense, spreading and decentralizing their forces to avoid catastrophic losses in the opening American-led (counter-) attack but the end result would be a decisive Iranian defeat.

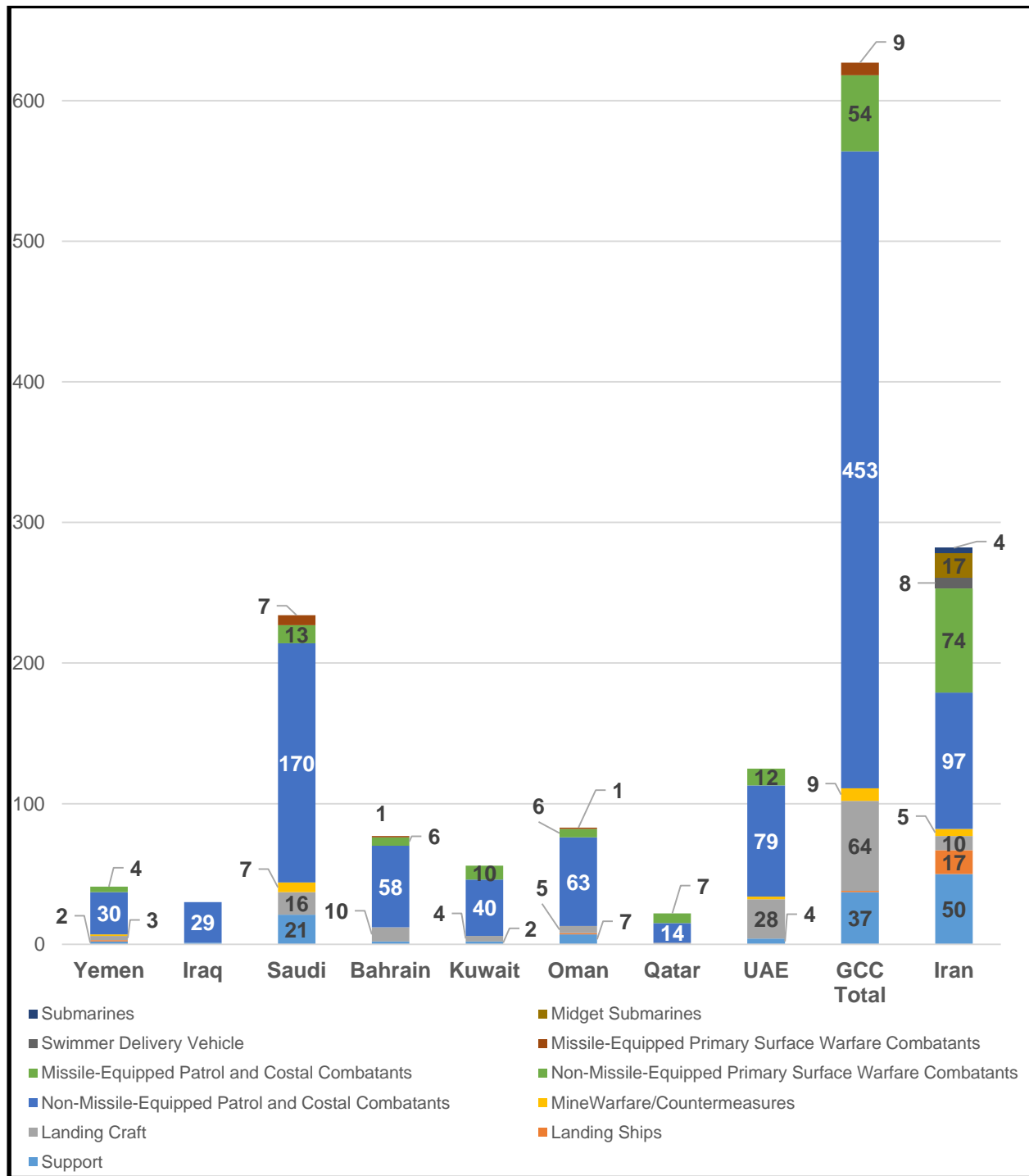
Iran must also deal with the fact that the Arab Gulf states have growing naval power, and could play a significant role in dealing with Iran's asymmetric naval threats and combatting littoral forces, and potentially could gain control of the Gulf without overwhelming US support. Southern Gulf Navies have also participated in some 60 exercises with the US, British, and French navies and are improving in both their ability to operate with other navies and in terms of individual capabilities. The UAE Navy is making particularly good progress, although the Saudi Navy lacks readiness and recent Saudi military acquisitions have been focused on building air and land power, leaving their naval forces without a significant technological edge over the IRIN and IRGCN.

At the same time, Southern Gulf navies are weak in the critical areas of anti-submarine warfare, demining capability, and seaborne anti-missile technology, and remain somewhat divided. Iran's air and naval forces might still be used to selectively raid and attack targets in the Gulf region.

As is the case with Southern Gulf air and air defense forces, Southern Gulf naval forces also need an integrated command, control, and IS&R network, and a single naval command facility of the kind provided by US command ships and the 5<sup>th</sup> Fleet, or could be created by setting up the kind of unified GCC naval command facility that Bahrain has offered to host. So far, such integration has been undermined by various intra-GCC tensions, preventing the creation of even a GCC-wide general staff. Allegedly, the strongest centralizer-status quo supporter tension has been between the Saudi government and Oman as centralizers and nationalists, respectively, with Saudi-Qatari disputes over Syria policy reducing Riyadh's support.

Southern Gulf naval forces also need more effective air-sea exercises and training as well as standardization and interoperability – although once again all these problems have far less impact if Gulf navies cooperate closely with the US. Without US support, the Arab states are potentially vulnerable to Iranian conventional naval attacks despite their military resources given their lack of strategic depth, training, and real-world war fighting experience. With US support, Iran's weaknesses would be decisive in anything other than a carefully managed asymmetric struggle.

**Figure 11: Comparative Iranian and Gulf Naval Forces- Part One (Graph)**



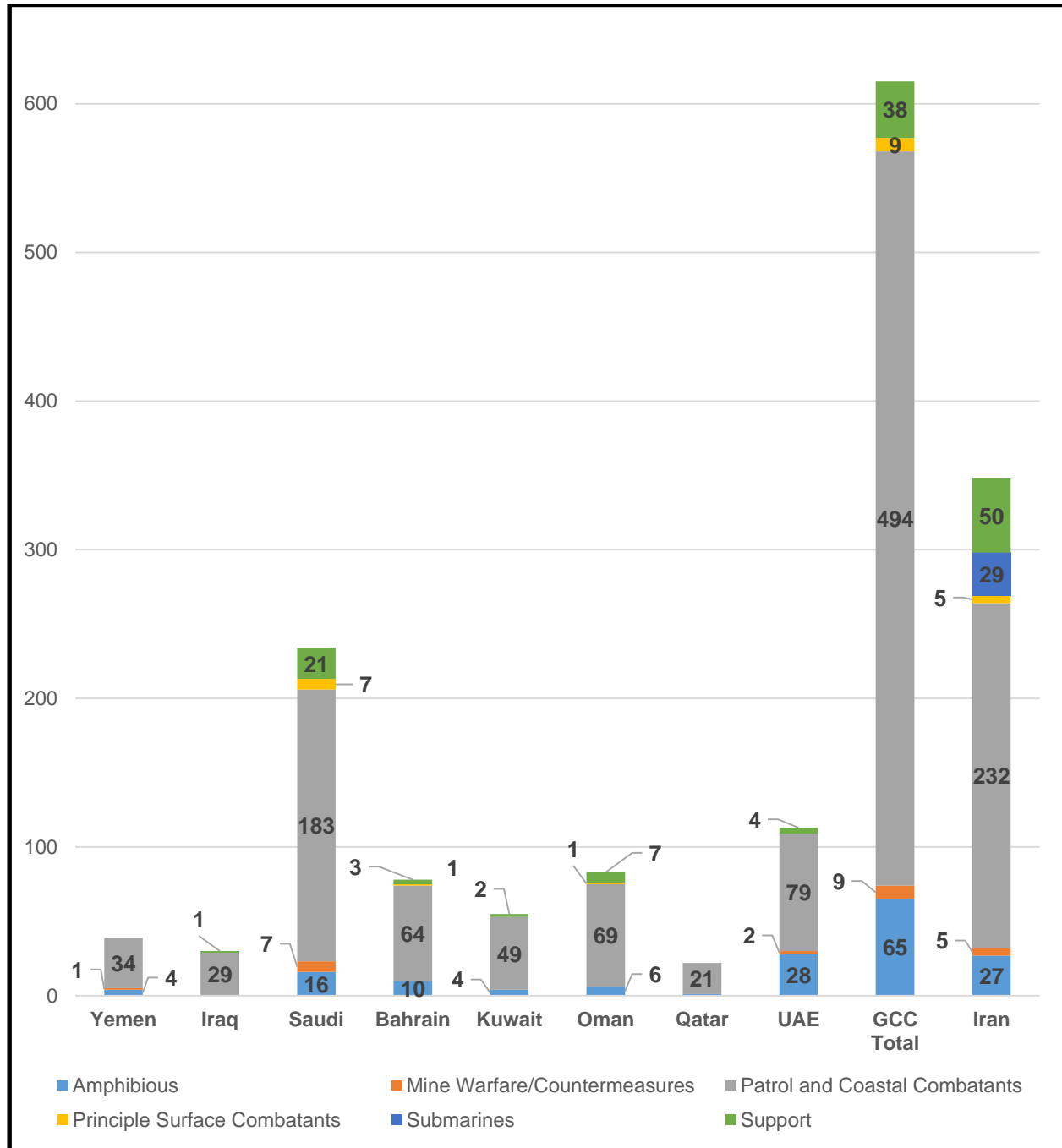
Source: Adapted from the IISS, Military Balance, 2013:

Note: Iranian totals include active forces in the Revolutionary Guards. Totals include coast guard-operated patrol and coastal combatants where applicable.

**Figure 51: Comparative Iranian and Gulf Naval Forces- Part Two (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Support	2	1	21	2	2	7		4	37	50
Landing Ships	1					1			1	17
Landing Craft	3		16	10	4	5	1	28	64	10
MineWarfare/Countermeasures	1		7					2	9	5
Non-Missile-Equipped Patrol and Coastal Combatants	30	29	170	58	40	63	14	79	453	97
Non-Missile-Equipped Primary Surface Warfare Combatants										
Missile-Equipped Patrol and Coastal Combatants	4		13	6	10	6	7	12	54	74
Missile-Equipped Primary Surface Warfare Combatants			7	1		1			9	
Swimmer Delivery Vehicle										8
Midget Submarines										17
Submarines										4

**Figure 62: Iranian and Gulf Naval Ships by Category- Part One (Graph)**



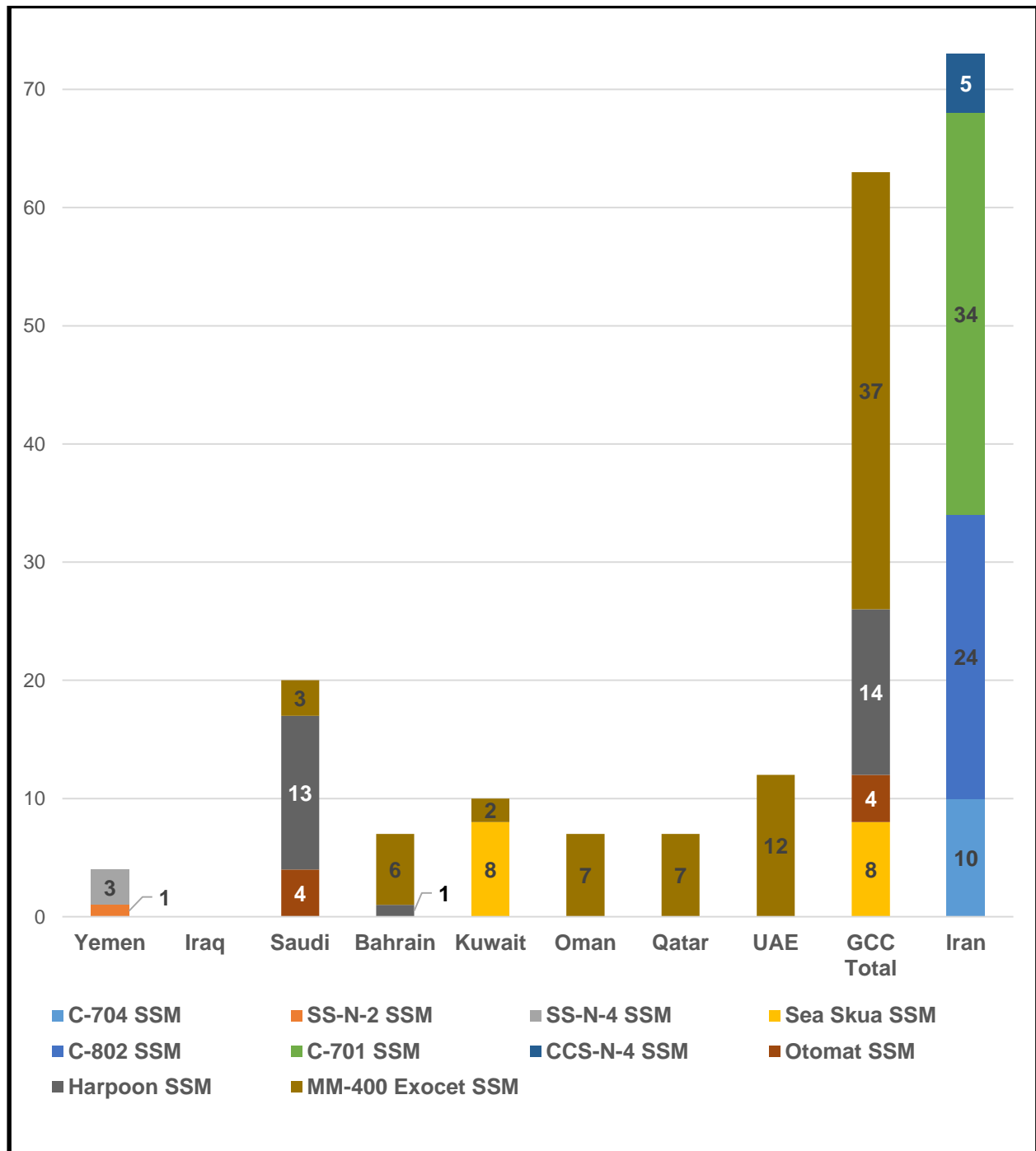
Source: Adapted from the IISS, Military Balance, 2013

**Figure 12: Iranian and Gulf Naval Ships by Category- Part Two (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Amphibious	4		16	10	4	6	1	28	65	27
Mine Warfare/Counter measures	1		7					2	9	5
Patrol and Coastal Combatants	34	29	183	64	49	69	21	79	494	232
Principle Surface Combatants			7	1		1			9	5
Submarines										29
Support		1	21	3	2	7		4	38	50

Source: Adapted from the IISS, Military Balance, 2013

**Figure 73: Gulf Anti-Ship Missiles- Part One (Graph)**



Source: Adapted from the IISS, Military Balance, 2013

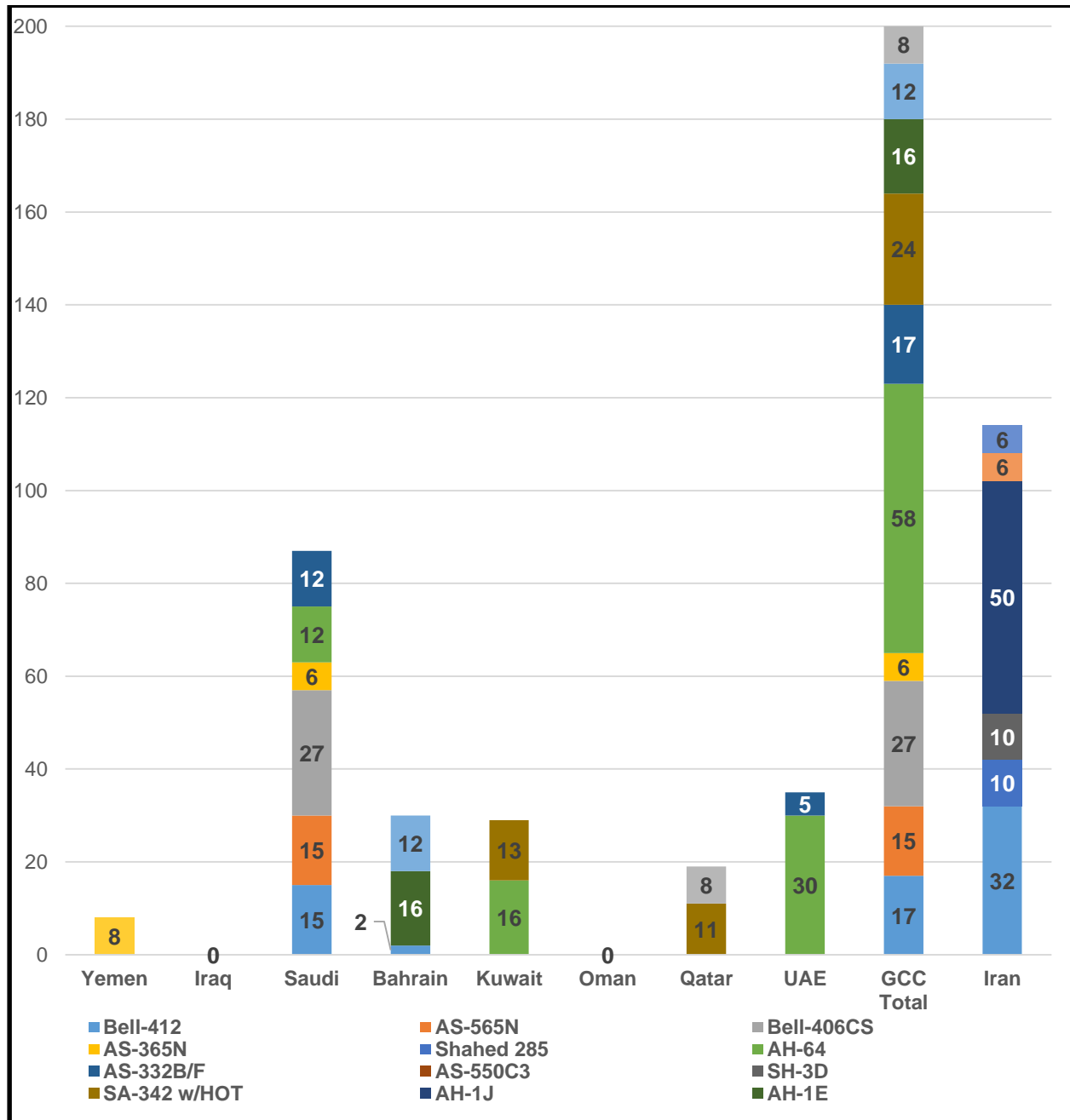
*Figure 8: Gulf Anti-Ship Missiles- Part Two (Table)*

	<b>Yemen</b>	<b>Iraq</b>	<b>Saudi</b>	<b>Bahrain</b>	<b>Kuwait</b>	<b>Oman</b>	<b>Qatar</b>	<b>UAE</b>	<b>GCC Total</b>	<b>Iran</b>
C-704 SSM										10
SS-N-2 SSM	1									
SS-N-4 SSM	3									
Sea Skua SSM					8				8	
C-802 SSM										24
C-701 SSM										34
CCS-N-4 SSM										5
Otomat SSM			4						4	
Harpoon SSM			13	1					14	
MM-400 Exocet SSM			3	6	2	7	7	12	37	

Source: Adapted from the IISS, Military Balance, 2013



**Figure 94: Gulf Attack, Anti-Ship, ASW, and Multi-Role Helicopters- Part One (Graph)**



Source: Adapted from the IISS, Military Balance, 2013

**Figure 104: Gulf Attack, Anti-Ship, ASW, and Multi-Role Helicopters- Part Two (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Bell-412		0	15	2		0			17	32
AS-565N			15						15	
Bell-406CS			27						27	
AS-365N			6						6	
Shahed 285										10
AH-64			12		16			30	58	
AS-332B/F			12					5	17	
AS-550C3										
SH-3D										10
SA-342 w/HOT					13		11		24	
AH-1J										50
AH-1E				16					16	
AH-1F				12					12	
SH-3D										6
WS-Sea King Commando							8		8	
Mi-35	8									
RH-53D										6

Source: Adapted from the IISS, Military Balance, 2013

## **Conventional Land Forces and Iran's Large – But Limited – Capabilities**

The Iranian Army is not a force that can easily attack across the Gulf or sweep around it, but **Figure 15** shows the Iran land forces are far too large and capable a force to ignore. Iran is a major land power by regional standards. It can deploy far larger ground forces than the US and GCC. It has some 350,000 active forces in its Army and 125,000 men in the land forces of its Islamic Revolutionary Guards Corps. It has 350,000 men in its Army reserves and can also mobilize a large military militia called the Basij with an estimated strength between 300,000 and several million.

According to the 2013 edition of the IISS Military Balance, its Army had 4 armored divisions, two mechanized divisions, four infantry divisions, and 1 commando division. It had a total of 7 armored brigades, 16 mechanized brigades, 13 infantry brigades, 1 airborne brigade, a Special Forces brigade, and 6-9 commando brigades. The real structure of the IRGC land forces is hard to relate to real-world combat units but seems to include over 30 light infantry brigades.

In practice, each Iranian Army (IRIA) division has a somewhat different organization. Some reporting indicates only one or two of Iran's armored divisions are well enough equipped to be considered true armored divisions. Iran does have at least one elite Special Forces Division, which was formed in 1993–1994, and what various sources report as the 55<sup>th</sup> Paratroop Brigade or the 55<sup>th</sup> Paratroop Division.

It should be noted that Iran does not seem to have a standardized order of battle and the term “division” or brigade” many not be an accurate picture of force strength. For example, according to one source, the 23<sup>rd</sup> Special Forces Division has 5,000 full-time regulars and is one of the most professional units in the Iranian Army, with the 65<sup>th</sup> commando brigade of similar quality and offensive capability.

The regular army also has a number of independent brigades and groups. These include some small armored units, one infantry brigade, three to four Special Forces and commando brigades, coastal defense units, a growing number of air-defense groups, six artillery groups/regiments, four to six army aviation units, and a growing number of logistic and supply formations. The land forces have six major garrisons and 13 major casernes.

There is a military academy at Tehran, and a signal-training center in Shiraz.<sup>187</sup> The airborne and Special Forces train at a facility in Shiraz, too.<sup>188</sup> Unclassified intelligence suggests that the increase in Special Forces has been an Iranian response to poor troop quality – in terms of training, morale, and equipment – among regular forces.

**Figure 15: Land Force Combat Units by Country in 2013**

	<b>Combat Units</b>	<b>Combat Support Units</b>
<b>Bahrain</b>	<p><b>Special Forces</b> 1 bn</p> <p><b>Maneuver Armored</b> 1 armed bde (-) (1 recce bn, 2 armd bn)</p> <p><b>Mechanized</b> 1 inf bde (2 mech bn, 1 mot bn)</p> <p><b>Light</b> 1 (Amiri) gb bn</p>	1 arty bde (1 hvy arty bty, 2 med arty bty, 1 lt arty bty, 1 MRL bty)
<b>Iran</b> Regular Forces           IRGC	<p><b>Command</b> 1 cdo div HQ 2 armd div HQ 2 mech div HQ 4 inf div HQ</p> <p><b>Special Forces</b> 1 cdo div (3 cdo bde) 6 cdo bde 1 SF bde</p> <p><b>Maneuver Armoured</b> 7 armd bde</p> <p><b>Mechanised</b> 16 mech bde</p> <p><b>Light</b> 13 inf bde Air Manoeuvre 1 AB bde</p> <p><b>Aviation</b> Some avn gp</p> <p><b>Command</b> 31 provincial corps HQ (2 in Tehran)</p> <p><b>Maneuver Light</b> 31 indep bde (each bde allocated 10 Basij militia bn for ops)</p>	5 arty gp
<b>Iraq</b>	<p><b>Special Forces</b> 2 SF bde</p> <p><b>Maneuver Armoured</b></p>	

<b>Kuwait</b>	<p>1 armd div (3 armd bde, 1 lt mech bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p><b>Light</b></p> <p>8 mot div (4 mot inf bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p>2 mot div (3 mot inf bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p>1 inf div (1 mech bde, 2 inf bde, 1 air mob bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p>1 inf div (4 lt inf bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p>1 inf div (3 lt inf bde, 1 engr bn, 1 sigs regt, 1 log bde)</p> <p>2 (presidential) mot bde</p> <p>1 (Baghdad) indep mot bde</p> <p><b>Aviation</b></p> <p>1 sqn with Bell 205 (UH-1H Huey II)</p> <p>1 sqn with Bell 206; OH-58C Kiowa</p> <p>1 sqn with Bell T407</p> <p>3 sqn with Mi-17 Hip H; Mi-171</p> <p>1 sqn with SA342M Gazelle</p>	
	<p><b>Special Forces</b></p> <p>1 SF unit (forming)</p> <p><b>Maneuver</b></p> <p><b>Reconnaissance</b></p> <p>1 mech/recce bde</p> <p><b>Armoured</b></p> <p>3 armd bde</p> <p><b>Mechanised</b></p> <p>2 mech inf bde</p> <p><b>Light</b></p> <p>1 cdo bn</p> <p><b>Other</b></p> <p>1 (Amiri) gd bde</p>	<p>1 arty bde</p> <p>1 engr bde</p> <p>1 MP bn</p>
<b>Oman</b>	<p><b>Maneuver</b></p> <p><b>Armoured</b></p> <p>1 armd bde (2 armd regt, 1 recce regt)</p> <p><b>Light</b></p> <p>1 inf bde (5 inf regt, 1 arty regt, 1 fd engr regt, 1 engr regt, 1 sigs regt)</p> <p>1 inf bde (3 inf regt, 2 arty regt)</p> <p>1 indep inf coy (Musandam Security Force)</p> <p><b>Air Manoeuvre</b></p> <p>1 AB regt</p>	<p>1 ADA regt (2 ADA bty)</p>
<b>Qatar</b>	<p><b>Special Forces</b></p> <p>1 SF coy</p> <p><b>Maneuver</b></p> <p><b>Armoured</b></p>	<p>1 fd arty bn</p>

<p><b>Saudi Arabia</b> Regular Forces</p> <p>National Guard</p>	<p>1 armd bde (1 tk bn, 1 mech inf bn, 1 AT bn, 1 mor sqn)  <b>Mechanised</b>  3 mech inf bn  <b>Light</b>  1 (Royal Guard) bde (3 inf regt)</p> <p><b>Maneuver Armoured</b>  4 armd bde (1 recce coy, 3 tk bn, 1 mech bn, 1 fd arty bn, 1 AD bn, 1 AT bn, 1 engr coy, 1 log bn, 1 maint coy, 1 med coy)  <b>Mechanised</b>  5 mech bde (1 recce coy, 1 tk bn, 3 mech bn, 1 fd arty bn, 1 AD bn, 1 AT bn, 1 engr coy, 1 log bn, 1 maint coy, 1 med coy)  <b>Light</b>  1 (Royal Guard) regt (3 lt inf bn)  <b>Air Manoeuvre</b>  1 AB bde (2 AB bn, 3 SF coy)  <b>Aviation</b>  1 comd (1 atk hel bde, 1 tpt hel bde)</p> <p><b>Maneuver Mechanised</b>  4 mech bde (4 combined arms bn, 1 SP arty bn)  <b>Light</b>  5 inf bde (3 combined arms bn, 1 arty bn, 1 log bn)  <b>Other</b>  1 (ceremonial) cav sqn</p>	<p>1 arty bde (5 fd arty bn, 2 MRL bn, 1 msl bn)</p>
<p><b>UAE</b></p>	<p>GHQ Abu Dhabi  <b>Maneuver Armoured</b>  1 armd bde  <b>Mechanised</b>  3 mech bde  <b>Light</b>  2 inf bde  <b>Aviation</b>  1 bde with AH-64D Apache; CH-47F Chinook; UH-60L/M Black Hawk  <b>Other</b>  1 Royal Guard bde</p>	<p>1 arty bde (3 arty regt)  1 engr gp</p>
<p><b>Yemen</b></p>	<p><b>Command</b>  1 (1st) armd div HQ  1 mtn div HQ</p> <p><b>Special Forces</b></p>	<p>3 arty bde  1 SSM bde  2 AD bn</p>

1 SF bde
<b>Maneuver</b>
<b>Armoured</b>
6 armd bde
4 (Republican Guard) armd bde
<b>Mechanised</b>
6 mech bde
3 (Republican Guard) armd bde
<b>Light</b>
19+ inf bde
<b>Air Manoeuvre</b>
2 cdo/AB bde
<b>Mountain</b>
5 mtn inf bde
<b>Other</b>
1 (Presidential Protection) gd force (1 armd bde, (1 Republican Guard) armd bde, 2 (Republican Guard) sy bde)

\*Armored, mechanized, infantry, paratroop, and Special Forces units, including divisions, brigades, regiments, and independent battalions, and companies.

\*\* Artillery, aviation, engineer, missile, and other combat support forces

Source: Adapted from the IISS, Military Balance, 2013

### **Strengths and Weaknesses in Iran's Army**

Iranian Army exercises also show it has learned lessons from the American campaigns in Iraq and Afghanistan and other recent wars and has focused on weapons and tactics that will allow it to overcome a technologically advanced foe invading Iran.

While the Army retains all the elements of a classic conventional force posture, including units like the 92<sup>nd</sup> Armored Division and Special Forces brigades,<sup>189</sup> the IRGC has emphasized the independent commands, man-portable weapons, dispersal of equipment, and ideological training needed to fight a guerilla war. Given the overall low quality of training – due in part to the reliance on conscripts, as well as the inherent weaknesses of two militaries – the Iranian army is unlikely to prevail in any conventional slugging contest with an advanced military.

Iran has made efforts to reduce the divisions and tensions between its regular army and the Revolutionary Guards since 2003. It has reduced the degree of separation between the forces by combining them at the general staff level and running joint exercises and practiced defensive operations where its regular forces first fight an invading enemy with support from the IRGC, and then disperse and join the IRGC in an asymmetric, sustained, national campaign to reverse initial successes by the invader.

At the same time, Iranian ground forces have serious limitations and military quantity is only as effective as its quality. Until recently, the IRIA has not carried out large-scale joint warfare drills that would prepare it for formal conventional war except for ones that dealt with the unrealistic prospect of some form of US invasion. Iranian combined arms maneuver capability is limited by both equipment and training, and Iran has not organized to sustain combat operations much beyond

Iran's borders. Iran does not practice realistic amphibious warfare beyond small operations or raids in the Gulf, and has limited lift capability and little capability to protect it.

Iran does hold large exercises and combined air-Army-IRGC exercises like the week long "Modafe'an-e Aseman-e Velayat 4," (Defenders of Velayat Skies 4) exercise it held in November 2012.<sup>190</sup> It, however, tends to exaggerate their size and progress. The Commander of Khatam al-Anbia Air Defense Base Brigadier General Farzad Esmayeeli briefed the media on the latter exercise and claimed the exercise would be carried out in an area of more than 850,000 square kilometers, and "display the full strength and preparedness of Iran's air defense forces to defend the Islamic Republic's eastern borders."<sup>191</sup> In practice, however, the preparations for the exercise seemed to be for little more than a command post exercise.

This is typical of Iranian exercises that often claim very large numbers and very demanding scenarios, but are far smaller in practice, show little inter-service cooperation beyond set piece activities with guaranteed success, and show little ability to innovate or go on the offensive.

The effectiveness of IRIA C<sup>4</sup>IS&R systems is unclear, but many systems seem dated and their level of integration seems limited. Like the other elements of Iran's military forces and the IRGC, the army is heavily dependent on conscripts, and has encountered problems in terms of its military politics and leadership as the IRGC has become the dominant political element of Iran's forces and moved close to Iran's Supreme Leader.

Like the rest of Iran's forces, the Army would also have to go to war with forces that have not had any real military combat experience since the end of the Iran-Iraq War in 1988 – a period of nearly a quarter of a century. This not only means it has no cadres with combat experience, but that it plans to use them to fight a very different kind of war than Iran has ever fought before.

### *Weaponry and Force Quality*

The GCC states have the potential edge in the quality of their armor, artillery, and mobility. The US can deploy several brigades' worth of heavy or light ground forces with some of the most advanced weaponry available; and air superiority gives the US and GCC states a major advantage in an era of joint air-land and precision day-night warfare.

**Figure 16** shows, however, that Iran's land forces are well-equipped enough to present a serious threat. At the same time, however, the vast majority of Iran's major land weapons are aging, of low to moderate capability, and require modernization. Many are worn as a result of the Iran-Iraq War, and Iran's land forces have never recovered from the loss of at least 40% of their major land weapons during the climactic battles of that war.

Iran has more than 1,660 main battle tanks, but none come close to the US M-1A1 or M-1A2, or most recent European and Russian designs. Only about 630 are relatively new and not combat worn. Iran is just beginning to renew its holding of other armored vehicles. It has a vast pool of over 8,500 effective towed artillery weapons and multiple rocket launchers, but less than 300 self-propelled weapons that have high maneuver capability and many are worn out. All of its 50 AH-1J attack helicopters date back to the time of the Shah, as do most of its transport and utility helicopters.

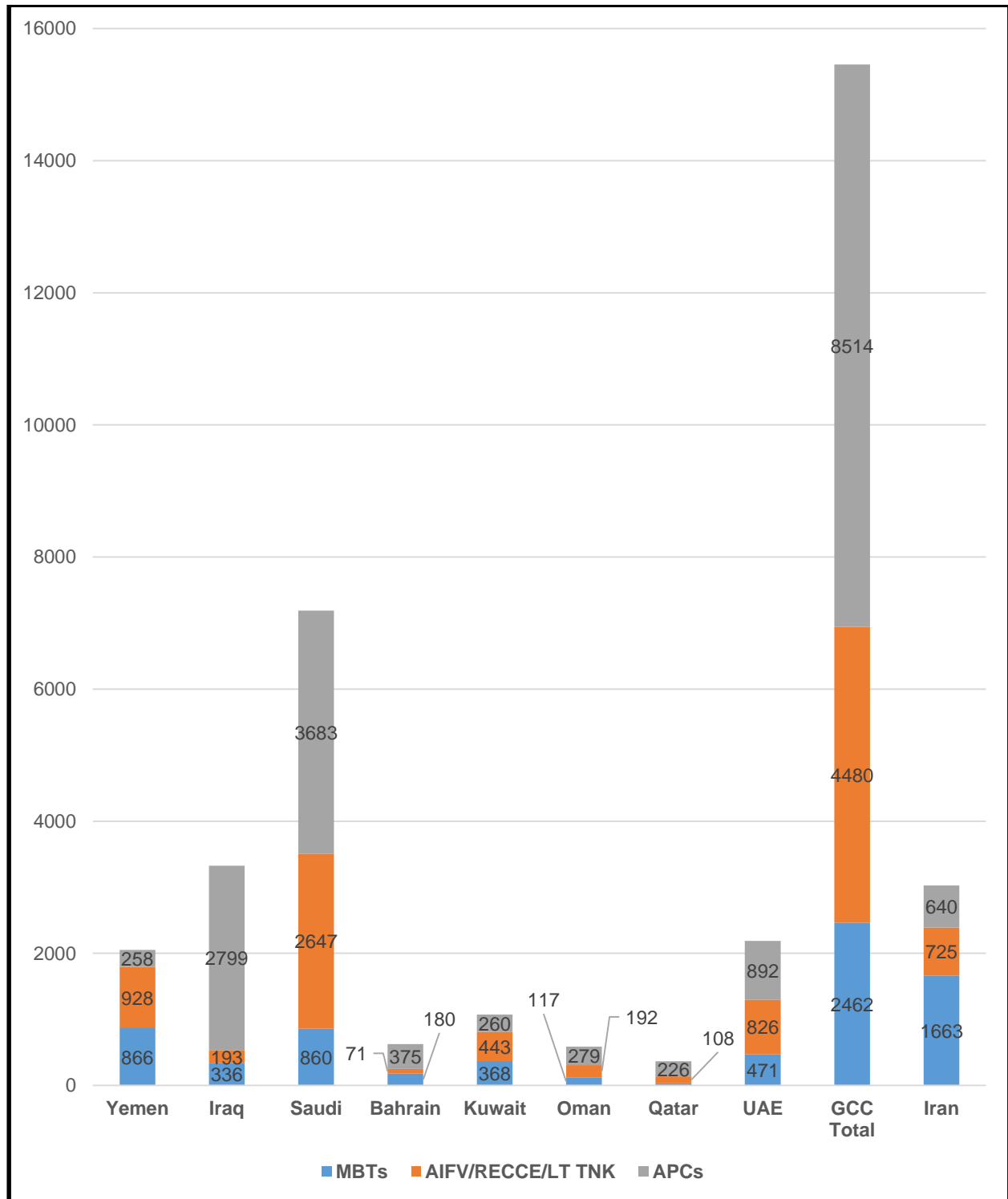
At the same time, **Figure 17** shows that Iran has developed its own short and medium range artillery rockets, drawing upon Russian and North Korean designs. Some of the larger systems could be equipped with chemical and cluster warheads, and some have been reported to have some



form of improved accuracy or guidance system. They are a partial substitute for air power against area targets, and could pose a serious threat if used in volleys on the defensive or against both military and civilian targets, but may be difficult to coordinate and use in an offensive mode. They also would be far more lethal if Iran could give them the accuracy or terminal guidance systems necessary to hit point targets – efforts it does have underway – or, supported its use of such shorter range systems with longer range missiles.

US experts feel, however, that Iran's current conventional cluster warheads are largely ineffective, that it does not deploy chemical cluster warheads, and accuracy remains at the level of competent unguided rocket designs. Iran is, however, steadily expanding the capability and range of such systems and has modified some of its longer-range systems – such as the Fajr-5 – so they can be smuggled in parts into other countries or through the tunnels from Egypt to Gaza. Some seem to transit through the Sudan and Iran may be sending components to Gaza so Hamas and the PIJ can assemble the rest of the system. The Federation of American scientists lists the following systems – whose description has been updated in some cases and does not attempt to catalog all systems – that Iran is transferring to non-state actors:<sup>192</sup>

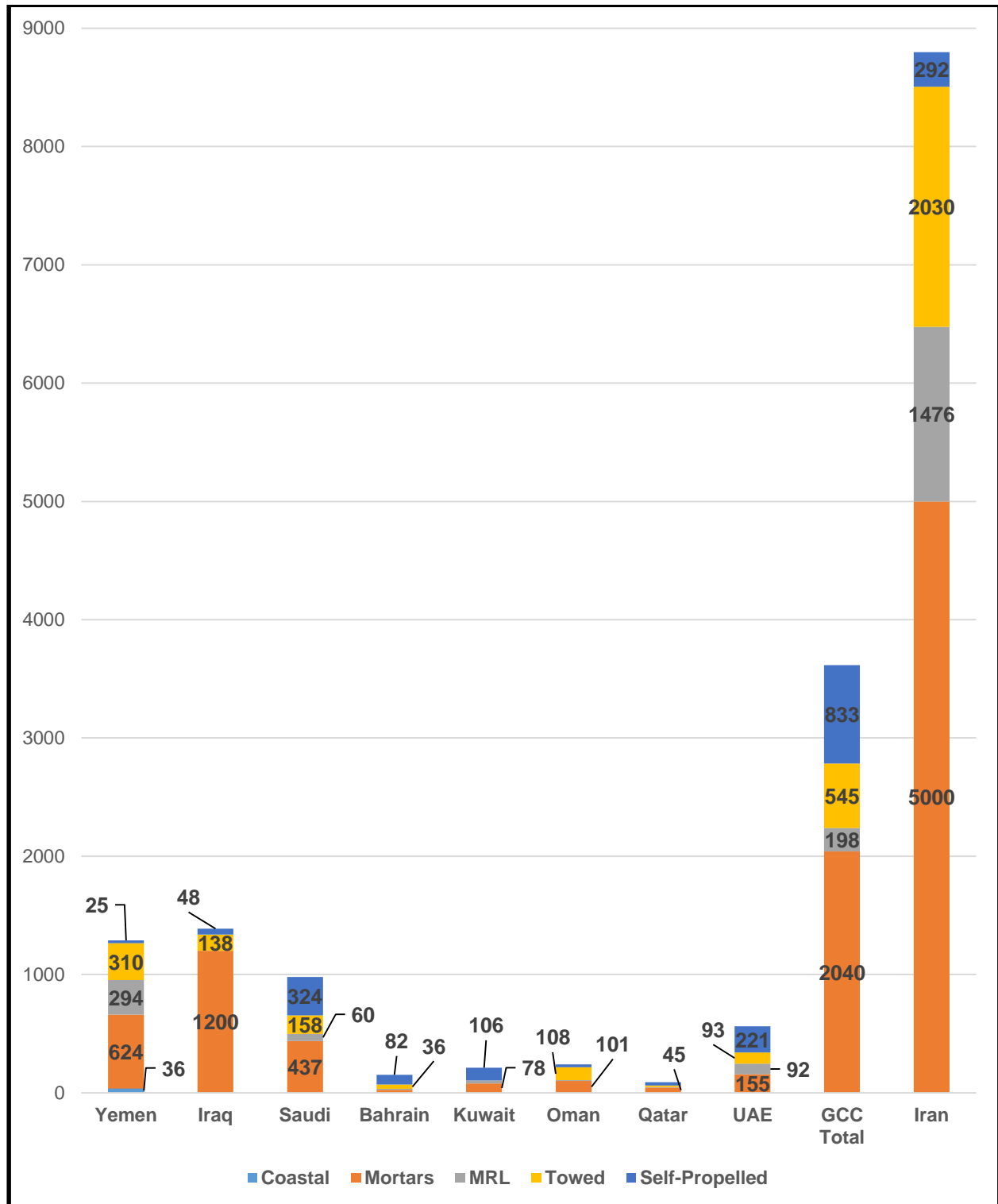
**Figure 116: Comparative Major Weapons in Iranian and Gulf Land Forces- Part One: Armor (Graph)**



**Figure 126: Comparative Major Weapons in Iranian and Gulf Land Forces-  
Part Two: Armor (Table)**

	<b>Yemen</b>	<b>Iraq</b>	<b>Saudi</b>	<b>Bahrain</b>	<b>Kuwait</b>	<b>Oman</b>	<b>Qatar</b>	<b>UAE</b>	<b>GCC Total</b>	<b>Iran</b>
MBTs	866	336	860	180	368	117	30	471	2462	1663
AIFV/RECCE/LT TNK	928	193	2647	71	443	192	108	826	4480	725
APCs	258	2799	3683	375	260	279	226	892	8514	640

**Figure 136: Comparative Major Weapons in Iranian and Gulf Land Forces- Part Two: Artillery (Graph)**



Source: Adapted from the IISS, Military Balance, 2013

**Figure 16: Comparative Major Weapons in Iranian and Gulf Land Forces-  
Part Four: Artillery (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Coastal	36									
Mortars	624	1200	437	24	78	101	45	155	2040	5000
MRL	294		60	9	27	6	4	92	198	1476
Towed	310	138	158	36		108	12	93	545	2030
Self-Propelled	25	48	324	82	106	24	28	221	833	292

**Figure 147: Iranian Short and Medium Range Artillery Rockets**

Type	Range(KM)	Diameter (MM)	Warhead (KG)	Comment
Arash		122		Katyusha MRL
Fajr-3	45			
Fajr-5	45-80		333	
Haseb	9	107	8	
Mushak-120	130		500	
Naze'at-4	90			
Naze'at-5				
Naze'at-6	105	355	850,	FROG
Naze'at-10	140	450	250,	FROG
Noor	18	122	18	
Oghab	34-45	230	70	
Shahin-1	13	333	190	
Shahin-2	20	333		
Zelzal-2	100			

Source: Jane's, Global Security, and FAS, "Iranian Artillery Rockets, <http://www.fas.org/man/dod-101/sys/land/row/mrl-iran.html>

Iran's longer-range missile systems are the only systems that can reach across the Gulf, and are analyzed in Volume II of this study: *The Gulf Military Balance: The Missile and Nuclear Dimensions*. Iran's existing shorter and medium systems could, however, be effective in harassment or politically motivated fire against Iraq and Kuwait, or against a poorly equipped force like the Afghan Army or Afghan warlords.

Iran's rockets have also proven to be useful in arms transfers to Hamas and Hezbollah, and as ways of influencing other non-state actors outside Iran. Like Iranian transfers of mortars, ATGMs, MANPADs, and anti-ship missiles to the Hezbollah, they give Iran a way of indirectly attacking Israel, gaining influence with Arab movements and populations, and doing so at little cost and with little risk.

Iran can tailor such transfers to the level of influence it wants to try to gain with a given non-state actor and – unlike Western and Arab states – see little risk the weapons will be turned back on Iran. Its arms exports are limited solely by how much it is willing to upset the regional balance of power and how far Tehran believes it can go without exposing itself.

As for lighter weapons, the Army has about 1,700 air-defense guns and large numbers of light anti-aircraft (AA) missiles, large numbers of anti-tank weapons and guided missiles, and some 50 attack helicopters. It manufactures modern variants of Russian anti-tank guided weapons – including the AT-3 and possibly AT-4 – and can manufacture tank and artillery ammunition, artillery pieces, and modern RPGs. It also makes an "improved" copy of the TOW missile, which it says it has reverse engineered from the missiles it received from the United States. This missile

is said to exist in both a Toophan and a Toophan 2 version. Iran has transferred AT-4s to Hezbollah in Lebanon and Hamas in Gaza, and has shown it can use such weapons for asymmetric as well as conventional war.

Iran has large numbers of man-portable surface-to-air missiles (MANPADS) like the SA-7 (Strela 2M/Grail) and SA-14 (Strela 3/Gremlin), some more modern SA-16s (Igla-1/Gimlet) and HN-5/HQ-5s, as well as Misaq 1 and 2 missiles (comparable to SA-16s). It may also have up to 500 SA-18s (Igla/Grouse), which are advanced versions of the SA-16.<sup>193</sup> Iran has some 50 Swedish RBS-70 low-level surface-to-air missiles.

Iran seems to be producing some version of the SA-7 and more advanced MANPADS, perhaps with Chinese assistance. It is not clear whether Iran can do this in any large number. Iran's land-based air-defense forces are also acquiring growing numbers of Chinese FM-80s, a Chinese variant of the French-designed *Crotale*. Some reports indicate that it has some SA-8s (a mobile air defense missile system), but these may be token transfers obtained for reverse-engineering purposes. Once again, Iran has transferred such weapons to the Hezbollah in Lebanon and Hamas in Gaza, and shown it can use such weapons for asymmetric as well as conventional war.

As noted earlier, the Iranian Army seems to retain 50 AH-1J Sea Cobra attack helicopters, 20 CH-47Cs, 50 Bell-214A/Cs, 68 AB-205As, 10 AB-206s, and 25 Mi-8/Mi-17 transport and utility helicopters. There are also reports that Iran signed orders for 4 Mi-17s in 1999 and 30 Mi-8s in 2001. Iran demonstrated its first domestic attack helicopter – the Toufan 2 – at the beginning of 2013, although it is unclear whether Iran's claims of a real anti-tank capacity are bluster or represent an improvement in Iran's rotary-wing stock. The readiness of the attack and armed helicopters is limited, however, and significant numbers of them do not seem operational or sustainable in combat. Army aviation bases are located in Bakhtaran, Ghale Morghi, Isfahan, Kerman, Mashad, Tehran, and Masjed Soleiman.<sup>194</sup> These Western-supplied transport and support helicopters have low operational readiness, and they have limited sustained sortie capability.

### *Iran's Ability to Defend Its Territory and Project Land Power*

As long as the Iranian army is loyal to the regime, it represents a serious force and one that makes talk of an invasion of Iran far easier than any real-world effort to carry out such a threat. Iran has large enough ground forces to make any US invasion of Iran problematic at best, particularly if it refuses conventional battles and engages in a protracted campaign that mixes carefully selected clashes with insurgent and resistance tactics.

The Army is stronger in the defensive than the offensive mode, and has made efforts to train and organize for defense in depth, and to fight in the face of an enemy with air superiority. Iran's air-land exercises in 2010 and 2011 revealed that Iran's land force posture still reflects a deep fear of US-led invasion, although much less than at the height of Iranian anger after the US invasion of Iraq in 2003. At the same time, Iran would still be vulnerable to precision air strikes and Iran's aging armored forces would face significant losses, necessitating a shift to mechanized or motorized infantry for any extended campaign.

As far as Western analysts know, Iran has not trained for operations abroad, and so would likely face significant logistics and C<sup>4</sup>ISR problems operating beyond its borders. It is highly dependent on towed firepower, and it is not equipped to maneuver long distances outside of Iran or to sustain intensive operations outside the country. At the same time, Iran does have large elements of its conventional forces that it can use to supplement the forces it is developing for asymmetric

warfare. Iran also can project power across its borders if it does not face a major air threat or cohesive resistance from the country involved.

Iran might, however, attempt to exert pressure on Baghdad through a conventional attack. Iraq will lack the land or air capabilities necessary to deter and defend against a major Iranian invasion through at least 2020, although Iran would lose air cover within days if Iraq appealed to the US. Iran would be highly vulnerable to air and cruise missile strikes against key military and strategic targets if the US intervened.

Iran might seek to use its land forces to attack through Iraq and Kuwait into the Upper Gulf, but would then face an immediate response from the US, the GCC, Britain, and France and would have to fight its way into and through Iraq in the face of massive US and GCC air superiority using ground forces designed for defensive operations on Iranian soil rather than offensives of any length.

While Iran does have the ability to conduct amphibious, sea, and helicopter raids, it does not have the lift to move large land forces any significant distance and particularly across the Gulf. Any major amphibious effort that was not totally permissive in crossing the Gulf and entering a Southern Gulf nation would be little more than suicidal in the face of US and GCC naval and air forces. Furthermore, in any such campaign, Iran would be vulnerable to the asymmetric tactics it has been refining. For example, an Iranian movement into Iraq would be vulnerable to a sustained insurgent or guerilla campaign.

Iran's best way to wage offensive ground war would be asymmetric as well, but utilize only small amphibious raiding parties and other light forces to strike vulnerable infrastructure in hit-and-run attacks. Iran's sealift capacity is large enough to manage such a force, and could potentially avoid detection on the first raid by hiding in the clutter of other Gulf traffic; any such future attacks, however, even on a small scale, would likely be suicidal for the forces involved. The Iranian Navy and Air Force are too weak to cover any overt cross-Gulf attack.

### ***The Overall Balance of US and Southern Gulf versus and Iranian Conventional Military Forces***

With the possible exception of Iraq, Iran's conventional forces cannot compete with the US or Gulf states in any regular form of conventional warfare. Iran can force the level of conflict to escalate sharply by threatening civilian shipping, but only at tremendous cost to Iran.

#### **Iranian Views of the Conventional Balance**

It is important to note, however, that Iran's official statements take a very different stand on the overall balance of US and Iranian conventional capabilities and constantly challenge the legitimacy of the US conventional deployments to the region. These statements range from a focus on a narrow aspect of the balance to broad statements about the overall level of US and Southern Gulf capabilities:

- “Before the Revolution, Iran relied on the West for material and protective gear. However the armed forces now enjoy a high state of might and readiness that can deliver a crushing response to any kind of threat, at every level, on land, at sea and in the air. Iran's armed forces are completely independent in the design, manufacture, repair and maintenance of various types of UAVs, and the as the sanctions against us become more severe, our ability and influence in the region will increase. Iran is accustomed to sanctions, and this



hostility is not new to us. We must make the threats into opportunities.” Habibollah Sayyari, Commander of the Iranian Navy, November 9, 2012.<sup>195</sup>

- “Owing to the (high) speed (of the growth and development) of the Islamic Revolution, this cancerous tumor, Israel, is challenging us to war, but it is not clear when this war would take place... [if the enemy were wise, there wouldn't be any problem] but the problem is that there is no guarantee for this rationality and we should be prepared too.” Major General Mohammad Ali Jafari, Commander of the Islamic Revolution Guards Corps, September 30, 2012.<sup>196</sup>
- “Should the enemies desire to use the method and spirit of threats, we will naturally also threaten them. The (military) exercise by the armed forces of the Islamic Republic of Iran's Islamic Revolution, in fact, expresses the will to act against various types of threats that are targeting our national security.” - Hossein Salami, Revolutionary Guards Deputy, February 7, 2012.<sup>197</sup>
- “[T]he recent statements made by the US and the West about the Strait of Hormuz shows that they are frightened by the awe of the (Islamic) Revolution, otherwise the Iranian nation considers the Strait of Hormuz as the strait of peace. However, the Iranian nation is determined to cut the hand of those who seek adventurism in the Persian Gulf, the Sea of Oman and the Strait of Hormuz.” – Ali Larijani, Speaker of Iranian Parliament, February 1, 2012.<sup>198</sup>
- “Tehran will not remain indifferent to US mischief in the region if Washington tries to cause problems for regional countries. The Strait of Hormuz is a region of peace and Iran has protected its peace for centuries and will continue to do so in order to maintain calm in it,”-Ali Larijani, Speaker of Iranian Parliament, January 31, 2012.<sup>199</sup>
- “The US has given a role to Saudi Arabia, Qatar and Turkey to direct the regional developments in a way that they move towards these countries' interests in line with the US policies and opposite to Iran's policies. Owing to the fact that Iran's Islamic Revolution serves as a role model for the regional and world nations in their fight against the tyranny of their rulers and arrogant powers, the US and its allies are attempting to prevent Tehran's further political influence in the region.” - Major General Yahya Rahim Safavi, Senior Military Aide to the Supreme Leader, January 31, 2012.<sup>200</sup>
- “The United States did not dare to direct its aircraft carrier through the Strait of Hormuz alone; this is why the carrier was “escorted” by military vessels of other nations. If the Strait is closed, the aircraft carriers will become the war booty of Iran.” - Javad Karimi Qodousi, parliamentary National Security Committee member, January 24, 2012.<sup>201</sup>
- “There is no decision to block and close the Strait of Hormuz unless Iran is threatened seriously and somebody wants to tighten the noose. All the options are on the table.” - Mohammad Khazaei, Iranian Ambassador to the United Nations, January 19, 2012.<sup>202</sup>
- “Our capability to provide security in the region, specially the Strait of Hormuz during sensitive times, will not experience any change due to the western warships' trafficking in the region.” - Gholam Reza Karami, Iranian lawmaker and Chairman of the Parliamentary Defense Committee, January 16, 2012.<sup>203</sup>
- “Today the Islamic Republic of Iran has full domination over the region and controls all movements within it.” - Navy Rear Admiral Ali Fadavi, Commander of Iran's Islamic Revolution Guards Corps (IRGC), January 6, 2012.<sup>204</sup>
- “Iran has total control over the strategic waterway. Closing the Strait of Hormuz is very easy for Iranian naval forces.” -Rear Admiral Habibollah Sayyari, Iran's naval commander, December 28, 2011.<sup>205</sup>
- “If they impose sanctions on Iran's oil exports, then even one drop of oil cannot flow from the Strait of Hormuz.” - Mohammad-Reza Rahimi, Iran's first vice president, December 27, 2011.<sup>206</sup>

“Closure of the Strait of Hormuz is not on the Islamic Republic of Iran's agenda (at present), but if threats against Iran come to trample upon the rights of our nation while others use the strait for exporting their oil, then Iran will be entitled to the right to close the Strait of Hormuz. The international conventions reserve such rights for the Islamic Republic of Iran as well. For the time being, the Islamic Republic of Iran has not

decided to close the strait, but this (closing the strait) depends on the conditions of the region.” - Mohammad Taqi Rahbar, Iranian lawmaker, December 19, 2011.<sup>207</sup>

- “According to the international laws, including Paragraph 4 of Article 14 of the Geneva Convention, in case Iranian oil is sanctioned, we will not allow even a single barrel of oil to pass through to reach the hostile countries.” -Isa Jafari, Senior Iranian lawmaker, December 18, 2011.<sup>208</sup>
- “Iran is always one of the most powerful countries all throughout the world and enjoys the capability to confront any kind of threats by the enemies.” – General Kioumars Heidari, Lieutenant Commander of the Iranian Army’s Ground Force, September 22, 2010.<sup>209</sup>
- “With our present technology, we can produce radars for different ranges and we can definitely detect enemies’ stealth warplanes.” – General Hassan Mansourian, Deputy Commander of Khatam ol-Anbia Air Defense Base, September 19, 2010.<sup>210</sup>
- “The strong presence of the Islamic Republic of Iran’s Navy in the high seas is promising and inspiring for nations. The Islamic Republic of Iran doesn’t favor aggression, but it favors presence in the high seas because these seas belong to all and are a ground for transfer of culture. A naval force with such strategic features will play a decisive role in the country’s politics, national dignity and honor, and independence.” – Supreme Leader Khamenei, July 24, 2011.<sup>211</sup>
- “Iran is self-sufficient in making and mass-producing artillery, tanks, helicopters and warships... “In the recent resolution, arrogant powers banned weapons sales to Iran, but we do not need their weapons and we can even export such weapons.” – Iranian Defense Minister Ahmad Vahidi, April 16, 2011.<sup>212</sup>
- “Sukhoi fighter jet has been optimized by the Army Air Force experts and now has the capability to hit and destroy targets with high precision in absolute darkness.” – General Seyed Mohammed Alavi, Lieutenant Commander of the Iranian Air Force for Operations, April 25, 2011.<sup>213</sup>
- “Given the mission we have been assigned to and due to our self-belief, we have been able to design and build equipments for our vessels, including the equipment of our small helicopters with big anti-warship missiles and mounting and equipping small vessels and helicopters with heavy missiles,” said IRGC Navy Commander Rear Admiral Ali Fadavi.<sup>214</sup>

In the real world, the mix of US and Arab Gulf forces, bases, and resources give the combination of US and Arab Gulf states’ forces a decisive advantage in virtually every aspect of conventional military competition.

However, this same mix of Iranian and Arab Gulf strengths and weakness confronts the US with at least a decade in which it must backstop its allies and compete with Iran by maintaining enough conventional forces in the Gulf, along with credible surge capabilities, to deter and defend against the full spectrum of the Iranian threats to the Gulf region, including rockets, missiles, weapons of mass destruction, asymmetric forces, and conventional forces.

If the US is to move towards a largely over-the-horizon force, the US must focus on building up Southern Gulf forces that can deal with the same spectrum of threats. It must also compete with Iran for influence in Iraq and create Iraqi security forces that can both provide internal security and deter and defend against Iran.

### **Iraq: The Conventional Power Vacuum in the Gulf**

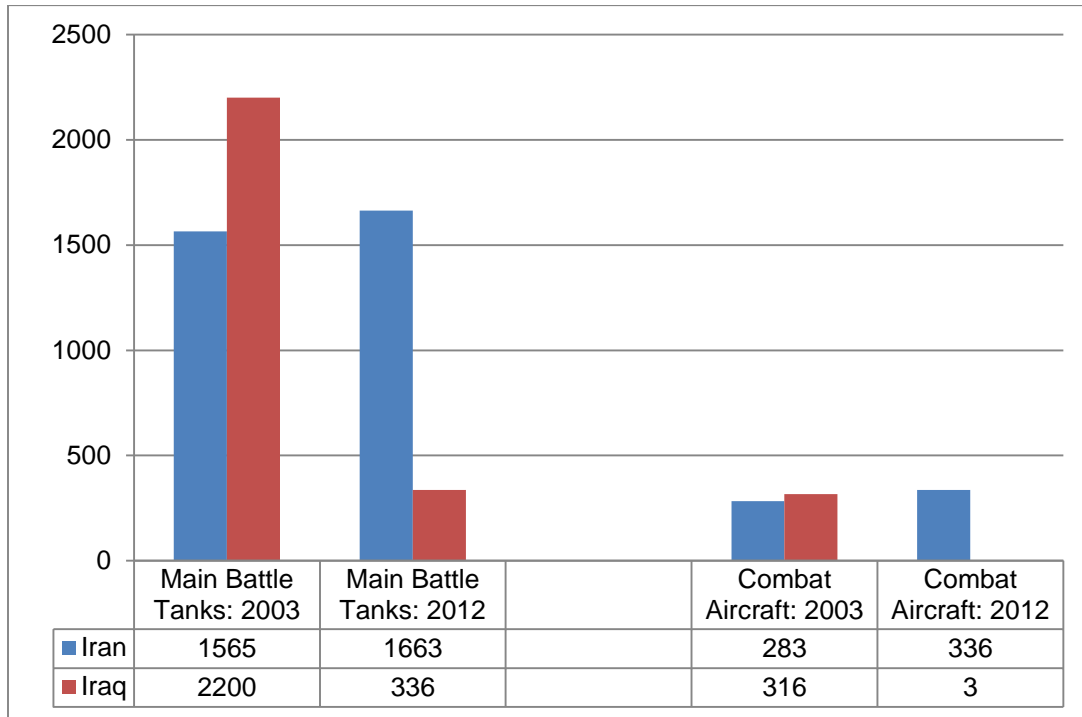
As has been touched upon earlier, Iraq is a major wild card in the Gulf conventional balance. Iraq lost almost all of its major conventional weapons during the US-led invasion in 2003. **Figure 18** shows that the US invasion of Iraq stripped away Iraq’s capability to deter and defend against Iran, and act as a regional counterbalance.

So far, the US has not been able to negotiate an effective Strategic Framework Agreement or Memorandum of understanding with Iraq following the withdrawal of US conventional forces in 2011. Even if the US can develop such an effective strategic partnership with Iraq, this is unlikely to give Iraq the conventional force strength it needs to deter and defend against Iran before 2020. Iraq now lacks any coherent plan for force modernization, and its plans for limited imports of M-1 tanks and F-16 aircraft are only the first step in rebuilding effective national defense capabilities.

The US must also certify that such weapons do not end up in the hands of pro-Iranian organizations or under the control of a defense ministry with close ties to Iran. While senior US officers who served in Iraq in 2012 and 2013 indicate there is no truth to reports by Shafaq News that there is agreement between Iran and Iraq reported to share all military technology, training, and intelligence; there is a risk that US materiel transferred to Iraq will allow Iran close access to US technology.<sup>215</sup> Iranian officials, officers, and members of the al Quds force do have close ties to key officials in the Iraqi government and forces.

In the interim, Iraq's primary deterrent to military action or pressure by Iran is the probability the US would aid Iraq if Iraq requested it, and that any attacking power would face a wily and experienced cadre of Iraqi insurgents, capable of inflicting demoralizing casualties on even a superpower.

**Figure 18: Shifting the Balance: Iran vs. Iraq in 2003 and 2013**



Category	2003			2014		
	Iraq	Iran	Force Ratio	Iraq	Iran	Force Ratio
Active Manpower	424,000	513,000	4:5	283,303	523,000	1:2
Reserve Manpower	650,000	350,000	19:10	NA	350,000	NA
Main Battle Tanks	2,200	1,565	7:5	267	1,895	1:5
AIFVs	1,300	815	8:5	100	650	1:3.8
APCs	2,400	590	4:1	1,519	640	2.3:1
Towed Artillery	1,900	2,085	9:10	0	2,220	1:14.7
Self-Propelled Artillery	150	310	1:2	26	292	1:6
Multiple Rocket Launchers	200	889	1:5	NA	750	NA
Combat Aircraft	316	283	11:10	3	336	1:112
Attack Helicopters	100	85	6:5	9	50	NA
Major SAM Launchers	225	205	11:10	0	130	NA

Source: Adapted from IISS, **The Military Balance 2013**, various editions and Jane's Sentinel series.

## *Competition in Asymmetric Forces*

The weaknesses in Iran's conventional forces help explain why Iran is so active in seeking to compensate for its inability to modernize its conventional forces, the delays in its military production efforts, and the limits on its arms by building up different kinds of military forces called "asymmetric" or "irregular" forces.

Iran's military doctrine places heavy emphasis on asymmetric warfare, and Iran continuously sends military signals that the US and Iran's neighbors cannot ignore:

- Military parades and exercises not only show its capability, but highlight the intent of Iranian armed forces and the supposed national support for this attrition-based policy.
- The IRGC often claims to conduct very large exercises, sometimes with 100,000 men or more. The exact size of such exercises is unclear, but they are often a fraction of IRGC claims.
- By displaying both its real and virtual military (e.g. naval) fighting capabilities through electronic, printed and network media and through official statements, Iran seeks to achieve the following political, diplomatic, and propaganda ends (4Ds):
  - o Defiance (to maintain a course of resistance, targeting primarily the Western political will and system).
  - o Deception (on the real state of Iranian warfighting capabilities, targeting the Western military establishments).
  - o Deterrence (with the IRI military "might", targeting Western public opinion).
  - o Demonstration (of the outreach of its own power, targeting the Iranian people and the Muslim world).

Iran's efforts include a mix of weapons and other military technologies to allow its conventional forces to try to exploit the weakness in US, allied, and Arab Gulf conventional forces. They include a wide range of steadily growing land, air, missile, and naval capabilities in its Islamic Revolutionary Guard Corps. These include small, hard to detect, elements for naval mine and missile warfare in the Gulf, training hostile and extremist elements in other countries, and steadily expanding long missile forces controlled by the IRGC that can already strike at targets anywhere in the region and are the logical delivery systems if Iran produces nuclear weapons.

Moreover, Iran is increasingly focusing on using its Al Quds force and other elements of its covert operations structure to arm or support extremist elements in the Southern Gulf, Lebanon, Gaza, and Yemen; and use Sunni and Shi'ite tensions in Bahrain, Iraq, Kuwait, Saudi Arabia, and Yemen. This gives Iran the potential capability to wage low-level proxy or indirect wars, and pressure regional states by threatening them with providing money, arms trainer's training and support to dissidents – as well as using them for sabotage, suicide attacks, and other bombing and IED attacks.

While any use of such forces would have less serious effects than an Iranian use of nuclear weapons, the events of the last year have shown they pose steadily growing risks. Iran has made more dramatic threats in response to ever more serious US and EU sanctions and US and Israeli military warnings. Since the use of such weapons systems would be far less provocative than missile or nuclear strikes, they lessen the chance of major American escalation, decreasing the costs to Iran of military action and making it more probable. This makes the small-scale conventional forces capable of countering asymmetric warfare aspect of military competition critical to the Arab Gulf states, the secure flow of world energy exports, and the stability of the global economy.

## The Reasons Behind Iran's Asymmetric Forces

Iran's leaders and senior officers have provided a wide range of descriptions of the reasons for their focus on asymmetric forces, and have made steadily more dramatic claims about their progress in building up its asymmetric forces and about the role they might play in US and Iranian military competition. Mohammad Ali Jafari, the commander in chief of the IRGC, has made numerous statements regarding Iran's growing emphasis on asymmetric or irregular warfare, and the role it plays in US and Iranian military competition. One such statement notes that,

“Asymmetrical warfare... is [our] strategy for dealing with the considerable capabilities of the enemy. A prominent example of this kind of warfare was [the tactics employed by Hezbollah during] the Lebanon war in 2006... Since the enemy has considerable technological abilities, and since we are still at a disadvantage in comparison, despite the progress we have made in the area of equipment, [our only] way to confront [the enemy] successfully is to adopt the strategy [of asymmetric warfare] and to employ various methods of this kind.” – General Mohammad Ali Jafari, Commander of the IRGC

Other Iranian leaders and officials have both echoed these themes and provided more detail:

- “This tanks has been designed and developed proportionate to battlefield threats and enjoys good telemetry, firepower, weapons and electronic warfare... it will be our main element in the battlefield. Each day we work on a newer version of Zolfaqar tanks so that the tank could maintain its efficiency in the battlefield and ground defense,” Commander of the Iranian Army Ground Force Brigadier General Ahmad Reza Pourdastan, September 26, 2012.<sup>216</sup>
- “If we want to use the normal rules to deal with the sanctions, we will definitely be faced with problems, therefore, like military wars that we have a series of asymmetric tactics, we should start a series of asymmetric economic wars under these sanctions since these embargos are no less than a military war. We have started these asymmetric wars and hold meetings seven days a week and have set up a headquarters in the CBI to this end.” Mahmoud Bahmani, Governor of the Central Bank of Iran, July 31, 2012.<sup>217</sup>
- “Our method (of choice in any possible war) is asymmetric warfare since enemy's systems and military doctrine have been designed based on the classical methods of battling.” – Brigadier General Farzad Esmayeeli, Commander of Khatam ol-Anbia Air Defense Base, August 28, 2011.
- “At this stage of the war games, part of the special and professional units of the IRGC ground force successfully displayed asymmetric warfare tactics and techniques with full coordination and preparedness.”  
“The armored and mechanized units of the IRGC Ground Force expanded the depth of their operation (al zone) through exercising new asymmetric warfare tactics and relying on mobile firepower, iron-shield and secure and impenetrable communications and then destroyed the hypothetical enemy.” -General Hamid Sarkheili, spokesman of Shohaday-e Vehdar war games, January 8, 2012.<sup>218</sup>
- “The Zolfaqar vessel is considered as a new model of the vessels of the same class which is capable of conducting operations in different marine conditions thanks to its sea-to-sea missiles and proper speed. The sea-to-sea cruise missile with high destructive capability and targeting power has immensely increased the vessel's power.” -Brigadier General Ahmad Vahidi, Iranian Defense Minister, January 2, 2012.<sup>219</sup>
- “Underwater is a good area (of activity) that is used by our forces but in an asymmetric and small-scale form, meaning that we are not seeking to build large and giant submarines since they are vulnerable.  
“These new high-speed small-sized equipments [sic] (vessels) will have an underwater function similar to the performance of small speedboats in seas, an ability that has worried the enemy.  
“Accordingly, we must use the same asymmetric approaches in building tools and equipment and even in defining our tactics.  
“In addition to rapid transfer of forces and detection of the enemy's surface and subsurface vessels, these submarines can identify military targets and carry Special Forces, while they also enjoy rapid swamp power and have radar (sonar) evading capability.

“The system enjoys high-precision in targeting.” – Major General Mohammed Ali Jafari, April 24, 2011.<sup>220</sup>

- “We should sketch out plans in a bid to resolve problems, and our goal should be winning the upper hand in the balance of powers in asymmetric wars.” – Brigadier General Ahmad Miqani, Commander of Khatam ol-Anbia Air Defense Base, July 6, 2009.<sup>221</sup>
- “What makes up for asymmetries in wars against those countries which enjoy technological superiority and hi-tech military tools and equipment is faithful and highly motivated troops.”
 

“This faith and motivation can resist against the enemies’ superior equipment and make up for a given country’s technological lacks and inferiorities. There, Baseej, as a faithful and motivated force, plays a decisive, fundamental and pivotal role in asymmetric battles.” – Major General Mohammed Ali Jafari, Commander of the IRGC, December 10, 2007.<sup>222</sup>
- “We can use all the available military equipment and tools in any (possible) asymmetric war through creativity, initiative and employing new methods.
 

We should redefine methods for utilizing weapons in accordance with the type of the combat.” – Brigadier General Mohammad Pakpour, Commander of the IRGC Ground Force, July 16, 2009.
- “The new equipment (submarines) are smaller and faster under water and operate similar to our small speedboats, which terrify our enemies on the surface.
 

“We are trying to increase our operational range and reach enemy vessels there [in the Indian Ocean].” – Major General Mohammed Ali Jafari, Commander of the IRGC, April 25, 2011.
- “All divisions of the Islamic Republic’s military pay close attention to events in neighboring states and incorporate these into their asymmetric warfare training.” – Brigadier General Ataollah Salehi, commander-in-chief of the Iranian army, January 12, 2011.<sup>223</sup>
- “The Kaviran meets our needs in asymmetric warfare. Its high rate of fire could enhance our ability to confront helicopters and low-level planes.” – General Ahmad-Reza Purdastan, commander of the Islamic Republic of Iran Army Ground Force regarding the development of the new Kaviran all-terrain vehicle and its 7.62 mm Gatling gun, September 23, 2010.
- “The Revolutionary Guards [Corps] will invest efforts in strengthening its asymmetrical warfare capabilities, with the aim of successfully confronting the enemies.” – Major General Mohammed Ali Jafari, Commander of the IRGC.
- “After September 11, [2001], all [IRGC] forces changed their [mode of] operation, placing emphasis on attaining combat readiness. The first step [towards achieving] this goal was to develop [a strategy] of asymmetrical warfare and to hold maneuvers [in order to practice it].” – Major General Mohammed Ali Jafari, Commander of the IRGC.<sup>224</sup>

### **Asymmetric Forces and the Art of Limited War**

These statements, and others like them, sometimes involve exaggerated and politicized rhetoric, but they still help illustrate the trends in a critical part of Iran’s military perceptions, actions, and force development, and highlight key exercises and developments in military technology.

“Going asymmetric” allows Iran to substitute asymmetric forces for weak conventional forces:

- Combined nuclear and asymmetric efforts sharply reduce the need for modern conventional forces – which have less practical value.
- Linkages to Syria, Lebanon, other states, and non-state actors like Hamas and Hezbollah add to Iran’s ability to deter, intimidate, and leverage.
- Iran can exploit fragility in the Gulf, world dependence on oil exports, and GCC dependence on income and imports.

Other open source evidence shows that Iran is building an increasingly capable asymmetric capability, relying on hard factual indicators like Iran's acquisition of fast-attack watercraft, midget submarines, anti-ship missiles, smart mines, light guided weapons, and UCAVs – all effective asymmetric tools to counter the superior conventional forces of its neighbors.

### *The Critical Impact of Options for Naval Warfare*

While Iran presents a wide range of such threats, the most serious military threat they pose may be the threat of a clash or conflict in the Gulf. Iran's assets include small, mobile, hard-to-detect platforms such as the Qadr-SS-3 midget submarine, high-speed combat boats such as the Seraj-1 and Zolfaqar, the Bavar-2 flying boat, the Kaviran all-terrain vehicle, and the ATV-500 *Jaguar*, among others, all of which fit into the IRGC's asymmetric doctrine.<sup>225226227</sup>

They also include the potential use of UCAVs, some 20 midget submarines, armed and unarmed unmanned submersibles, and new systems like the 70-knot, low observable Bladerunner 35 speed boat and other similar vessels armed with explosives to act as suicide boats. Further, Iran has developed a system for storing mines in a wide range of locations on its Gulf and Gulf of Oman coasts, dispersing them quickly to small shore facilities and/or boats, and making virtually any boat or ship a potential mine layer.

Iran practices using smaller combat ships in "clusters" of up to 10 against civilian or military targets, or in small groups of very different forces using different tactics and targets in a slow battle of attrition that poses a constant low-level threat calculated to avoid a massive US or Gulf response. These forces can be widely dispersed and used in unpredictable attacks, raising the risks and costs for civilian ships operating in the Gulf.

Moreover, also these forces can be concealed away from ports and military bases, giving Iran a second-strike capability. Iran can either escalate or drag out a constant crisis, seeking to wear down resistance to its demand or win grudging acceptance of its nuclear problems in the way that India, North Korea, and Pakistan have done, or provide a believable deterrent to what it would perceive as an unwarranted attack on its facilities. These capabilities include Iran's ability to threaten and intimate its Gulf neighbors, and threaten Gulf exports.

These systems are low-tech and lightly-armed, and are not capital-intensive. They are intended to offset superior military technology through sheer numbers, stealthiness, and high mobility. Iran understands that it cannot reasonably win a fight against the US in a conventional war or direct frontal confrontation, and these assets are designed to strike at vulnerable targets and critical infrastructure, such as Gulf shipping, oil tankers, oil platforms, and coastal desalination facilities.

### *A Proven History and Uncertain Future*

Iran has also proven its capability to use such forces effectively. Iran's past actions have shown this threat is all too real:

- Iranian tanker war with Iraq.
- Oil spills and floating mines in the Gulf.
- Use of Al Quds Force in Iraq.
- Iranian use of UAVs.
- Border and coastal "incidents."



- Arms transfers, in cooperation with Syria, to Hezbollah.
- Pilgrimage “incidents” in Mecca.
- Missile and space tests; expanding range of missile programs (future nuclear test?).
- Naval guards’ seizure of British boat, confrontation with US Navy, exercises in Gulf.
- Development of limited “close the Gulf” capability.
- Hamas/PIJ arms transfer and their rocket attacks on Eilat, Aqaba in August 2010.
- Iran regularly practices “swarming” targets in the Gulf with large numbers of small craft, shore-based anti-ship missiles, missile-armed aircraft, and increasing support from UAVs/UCAVs.
- Increasingly arming and supporting insurgents in Afghanistan.

The US and its allies cannot ignore the need to make worst-case assumptions about the skill with which Iran can plan and operate in asymmetric warfare in the kind of medium to large-scale conflicts that it has not yet put into practice.

At the same time, there are few meaningful unclassified data on Iran’s real world capabilities to actually undertake an extended complex asymmetric warfare campaign or “war of attrition.” As is repeatedly stressed throughout this analysis, the IRGC and every other relevant element of Iran’s forces – with the exception of those who gained experience running insurgencies against the US in Iraq and Afghanistan – would have to go to war with forces and leaders that have not had any real military combat experience since the end of the Iran-Iraq War in 1988 – a period of near a quarter of a century.

This not only means Iran has no cadres with serious combat experience beyond the limited number of “advisors” in Iraq and Lebanon, but that it plans to fight a very different kind of war than Iran has ever fought before. While innovation can be a blessing, a lack of real-world experience can be a major curse.

### *Using Asymmetric Forces to Compensate for Conventional Weakness*

These are all reasons to stress that Iran’s weaknesses in conventional forces need to be kept in careful perspective. Iran has spent two decades building up capabilities for asymmetric and irregular warfare. The end result is still a mix of Iranian forces the US can counter relatively quickly with the large-scale use of its own forces, combined with a strong ability to escalate against targets within Iran. Still, any such escalation means a major war, and a full-scale use of force by the US would dramatically raise tensions in the Gulf and further poison long-term relations with Iran.

Iran has developed a mix of *conventional* and *asymmetric* land, air, and naval capabilities that can threaten its neighbors, challenge the US, and affect other parts of the Middle East and Asia. Iran may also be able to use state and non-state actors as proxies to threaten and manipulate a range of neighboring states, including Afghanistan, Iraq, and Israel. These forces are the key military elements of Iranian strategic competition and are steadily increasing in size and capability.

Accordingly Iran’s asymmetric warfare capabilities may still give it a powerful capability to intimidate its neighbors and pose a higher risk to the US than a similarly-sized symmetrically-oriented military. It would be far harder for the US to defeat in a limited war of attrition or any other conflict where the US is unable to act decisively, overwhelmingly, and disproportionately in

striking Iranian forces and targets (either for political reasons or because of a lack of support from the Arab Gulf state).

### ***Linkages to Iran's Nuclear and Ballistic Missile Programs***

From a strategic perspective, Iran's asymmetric capabilities also interact with its nuclear weapons development efforts to compensate for the limitations to its conventional forces. "Going nuclear" provides a level of intimidation that Iran can use both to heighten the power and deterrent capabilities of its asymmetric forces and to deter conventional responses to its use of asymmetric warfare:

- Even the search for nuclear power is enough to have a major effect on competition and perceptions.
- Development of long range missiles adds to Iran's credibility and pressures Iran's competitors.
- Crossing the nuclear threshold in terms of acquiring a "bomb in the basement" option, creating ambiguity and hence a form of deterrence.
- Threats to Israel legitimize the capabilities that tacitly threaten Arab states. Support of Hamas and Hezbollah increases legitimacy in Arab eyes – at least Arab publics.
- Many future options: stockpile low enriched material and disperse centrifuges, plutonium reactors, underground tests, actual production, arm missiles, breakout arming of missiles.
- Declared forces, undeclared forces, leverage Israeli/US/Arab fears.

### **Ongoing Developments in Iran's Growing Mix of Asymmetric Warfare Forces**

Iran continues to improve the capabilities and training of its conventional forces for asymmetric warfare in recent years and to build up specialized elements within its force structure. As of 2012, some of the key recent developments in Iran's growing asymmetric capabilities included:

- The development of the *Karrar* and *R'ad*UCAVs in early 2010, both of which have a range in excess of 1000 km and can destroy targets with guided munitions.<sup>228</sup>
- The installation of a "Coastal Defense Missile" system along the country's 1,500 mile coastline, a move deemed the "appropriate strategy" to protect the country from attack.<sup>229</sup>
- The development of the *Khalij Fars* ("Persian Gulf") anti-ship ballistic missile.<sup>230</sup>
- The introduction of new high-speed combat boats armed with guided missiles and torpedoes such as the *Seraj-1* and the *Zalfaqar*.<sup>231</sup>
- The introduction of the *Bavar-2* flying boat, which is equipped with night vision and armed with machine guns and rockets.<sup>232</sup>
- The introduction of high mobility all-terrain vehicles such as the *ATV-500 Jaguar* and the *Kaviran*.<sup>233234</sup>
- Increasing use of SDVs ("Swimmer Delivery Vehicle"), which can be used for inserting special forces elements or laying mines covertly.
- Further development and deployment of midget submarines capable of laying mines and potentially firing torpedos in the shallow, ASW-unfriendly Stratis of Hormuz.

Unlike Iran's conventional forces and its nuclear and missile efforts, the range of Iranian asymmetric options and forces is too wide to easily characterize or catalog. The core aspects of Iran's growing capabilities for asymmetric warfare are shown in **Figure 19**, but this is only part of the story.

***Figure 19: Key Iranian Capabilities for Asymmetric Warfare***<sup>235</sup>

- 125,000+ men total in IRGC, including Qods Force operatives who work closely with Hezbollah and other proxies in and out of the region. Can draw on 300,000+ Basij.
- 20,000 Naval Guards, including 5,000 marines.
- Armed with HY-3 CSS-C-3 Seersucker (6-12 launchers, 100 missiles, 95-100 km), and 10 Houdong missile patrol boats with C-802s (120 km), and 40+ Boghammers with ATGMs, recoilless rifles, machine guns.
- Large-scale mine warfare capability using small craft and commercial boats.
- Based at Bandar e-Abbas, Khorramshar, Larak, Abu Musa, Al Farsiyah, Halul, Sirri.
- IRGC air branch reported to fly UAVs and UCAVs, and control Iran's strategic missile force.
- 1 Shahab SRBM Bde (300-500-700 km) with 12-18 launchers, 1 Shahab 3 IRBM Btn (1,200-1,280 km) with 6 launchers and 4 missiles each.
- A growing cyber capability managed by the IRGC

***The Islamic Revolutionary Guards Corps (IRGC)***

The Islamic Revolutionary Guards Corps (IRGC, or “Sepah-e Pasdaran”) is the key element in US and Iranian military competition. The IRGC grew out of the Iranian Revolution of 1979. Ayatollah Ruhollah Khomeini established the force both to protect the Islamic order of the new Iranian government, and to act as a counter to the regular armed forces – which were perceived as still loyal to the Shah or as having uncertain loyalty to the new regime. The IRGC became the primary offensive arm of Iran's military forces during the Iran-Iraq War, as well as a key tool in dealing with internal opposition and providing support to other state and non-state actors outside Iran.

As **Figure 20** shows, the IRGC has evolved into a major political, military, and economic force – although not without internal power struggles and possibly at the cost of its military effectiveness. It reports directly to the Supreme Leader, and is believed to be loyal to Ayatollah Khamenei, but has its own factions – some of which have loyalties to former President Mahmoud Ahmadinejad, who is a veteran of the IRGC, and some with loyalties to other major clerics and political figures. It is more political and ideological than the regular armed forces. A number of senior officers in the IRGC have relatives or close ties to Iran's leading clerics.

While unclassified sources are uncertain, the IRGC is generally reported to have approximately 125,000 men. It has significant conventional forces, and operates Iran's longer-range surface-to-surface missiles. It is believed to play a major role in Iran's effort to create nuclear weapons – and most or all other chemical, biological, radiological, and nuclear (CBRN) programs – and to be the force that would operate Iran's nuclear-armed forces if they are developed and deployed.

The IRGC has substantial capabilities for asymmetric warfare and covert operations. It was members of the Naval Branch of the IRGC that seized 15 British sailors and Marines, who seem to have been in Iraqi waters, in March 2007, an act that IRGC leaders lauded for its daring and initiative.<sup>236</sup> The IRGC also includes the Al Quds Force and other elements that operate covertly or openly overseas – working with Hezbollah of Lebanon, Shi'ite militias in Iraq, and Shi'ites in Afghanistan – and has been at the heart of Iranian efforts to back anti-American insurgencies in neighboring states.

The IRGC is also taking a leading role in Iran's buildup of cyber defense capabilities. The commander of IRGC's Tehran-based Mohammad-Rasulallah Corps, General Mohsen Kazzemeini, said the IRGC plans to set up a division to confront cyber threats against Iran. “We are seeking to have a cyber-division in Tehran, and measures have been taken in this regard.” He added that the IRGC plans to stage large-scale cyber war games in the near future.

Kazemeini said that Iran's enemies pose simultaneous soft, semi-hard and hard threats to Iran, and added that the IRGC's Tehran corps has adopted the necessary measures to confront the three types of threats. Meanwhile, Kazemeini noted that the IRGC cyber division will not be tasked with waging cyber war against other countries, rather "we just want to monitor (enemies') cultural and social moves in cyberspace."

*Figure 20: Key Elements of the IRGC*

- 125,000+ men, capable of drawing upon drawing on 300,000 Basij.
- 20,000 Naval Guards, including 5,000 marines.
- Armed with HY-3 CSS-C-3 Seersucker (6-12 launchers, 100 missiles, 95-100 km), and 10 Houdong missile patrol boats with C-802s (120 km), and 40+ Boghammers with ATGMs, recoilless rifles, and machine guns.
- Large-scale mine warfare capability using small craft and commercial boats.
- Based at Bandar e-Abbas, Khorramshar, Larak, Abu Musa, Al Farsiyah, Halul, and Sirri.
- IRGC air branch reported to fly UAVs and UCAVs and control Iran's strategic missile force.
- 1 Shahab SRBM Bde (300-500-700 km) with 12-18 launchers, 1 Shahab 3 IRBM Btn (1,200-1,280 km) with 6 launchers and 4 missiles each.
- The IRGC has a wide variety of assets at its disposal to threaten shipping lanes in the Gulf, Gulf of Oman, and the Caspian Sea.
- 3 Kilo (Type 877) and unknown number of midget (Qadr-SS-3) submarines (reported to be around ten); smart torpedoes, potentially anti-ship missiles, and smart mine capability (these naval capabilities are shared with the IRIN).
- Use of 5 minelayers, amphibious ships, small craft, commercial boats.
- Threatened attacks on tankers, shipping, offshore facilities by naval guards.
- Capability to raid with 8 P-3MP/P-3F Orion MPA and combat aircraft with anti-ship missiles(C-801K (8-42 km), CSS-N-4, and others).
- Free-floating mines, smart and dumb mines, oil spills.
- Land-based, long-range anti-ship missiles based on land, islands (Seersucker HY-2, CSS-C-3), and ships (CSS-N-4, and others. Sunburn?).
- Forces whose exercises demonstrate the capability to raid or attack key export and infrastructure facilities.

### **IRGC Land Forces**

The broad trends in IRGC forces have been shown in **Figure 20**. In the case of the IRGC land forces, they have small elements equipped with armor and the equivalent of conventional army units, along with some units trained for covert missions and asymmetric warfare, but most of its forces are lightly-armed infantry trained and equipped for internal security missions. These forces are reported to have between 120,000 and 130,000 men, but such totals are uncertain as are all unclassified estimates of the strength, organization, equipment, and industrial base of the IRGC.

This manpower pool includes conscripts recruited from the same pool as regular army conscripts, and training and retention levels are low. The IRGC land forces also seem to control the Basij-e Mostazafin (Mobilization of the Oppressed) and other paramilitary forces in most internal security

operations. In terms of armaments, the IRGC lacks main battle tanks, artillery, air defenses, or logistic support for sustained operations. Its heaviest equipment is likely armored personnel carriers to provide transport and limited fire support.

Some sources, like the International Institute for Strategic Studies (IISS), report a force structure with 20 “divisions,” but most IRGC units seem to be large battalion-sized elements. According to a *Jane’s* report, estimates of the IRGC’s organization differ sharply. Some sources claim that there are two armored, five mechanized, 18 infantry, and one Special Forces division, and about 15-20 independent brigades. The report concludes that many alleged divisions are equivalent to large brigades and the personnel numbers of the IRGC could support only three to five divisions.<sup>237</sup> The total manpower pool of the IRGC could support only about five to six light infantry divisions. There is supposedly also one airborne brigade. Public sources also suggest that the IRGC is split into 31 regional commands (one for each province, plus the city of Tehran) that would coordinate defensive strategy (their role in an offensive capacity is unclear).

The IRGC is heavily dependent on conscripts, and is known to have encountered problems in terms of its military politics and leadership. There is no way to appraise the quality of its C<sup>4</sup>I and IS&R capabilities in large-scale combat, its capabilities for combined arms and joint warfare, or its levels of sustainability. There is no way to know just how politicized it has become, or the extent to which its often hard public line and extreme rhetoric is simply propaganda or reflects true lack of realism and capability for objective planning and management of its combat operations.

The IRGC often claims to conduct large exercises, sometimes with 100,000 men or more. The exact size of such exercises is unclear, but unclassified intelligence suggests they are often a small fraction of what the IRGC claims. With the exception of a limited number of more elite elements, training is limited and largely emphasizes internal security purposes. Most forces would require substantial refresher training to act in any mission other than static infantry defense and using asymmetric warfare tactics like hit-and-run operations or swarming elements of forces when an invader appears vulnerable.

The IRGC is the center of much of Iran’s effort to develop asymmetric warfare tactics to counter a US invasion. Work by Michael Connell of the Center for Naval Analysis notes that the IRGC has been systematically equipping, organizing, and retraining its forces to fight decentralized partisan and guerrilla warfare. It has strengthened the anti-tank and anti-helicopter weaponry in the IRGC battalions, and stressed independent battalion-sized operations that can fight with considerable independence even if Iran loses much of the coherence in its command, control, communications, and intelligence capabilities.<sup>238</sup> Its exercises have included simulated attacks on US AH-64 attack helicopters with Iran’s more modern man-portable surface-to-air missiles (MANPADs), and used mines and improvised explosive device (IED)-like systems to attack advancing armored forces.

The IRGC, like the army and the Basij, have attempted to develop and practice deception, concealment, and camouflage methods to reduce the effectiveness of US and other modern imagery coverage, including dispersing into small teams and avoiding the use of uniformed personnel and military vehicles. While the credibility and effectiveness of such tactics are uncertain, the IRGC claims to be adopting tactics to avoid enemy radars and satellites. Both the IRGC and the army have also attempted to deal with US signals and communications intelligence collection capabilities by making extensive use of buried fiber optics and secure communications, while developing more secure ways to use the internet and commercial landlines. Iran claims to

be creating relatively advanced secure communications systems, but its success is uncertain; Iran has also recently developed a national intranet, which it hopes will both reduce public access to Western sources and limit some computers vulnerability to cyberwar.<sup>239</sup>

Connell notes that the IRGC is developing such tactics in ways that could form a layered or “mosaic” defense with the army and air forces, where the IRGC could keep up constant pressure on any advancing US forces. He indicates that the IRGC has developed special stay-behind units or “cells” that would include some 1,900 to 3,000 teams of three to four soldiers whose main mission would be to attack US lines of supply and communication, strike at elements in rear areas, and conduct ambushes of combat troops. This could include sending units forward into countries like Iraq and Afghanistan to attack US forces there, or encourage local forces to do so, and sending teams to raid or infiltrate southern Gulf states friendly to the US.<sup>240</sup>

At the same time, Connell notes that if the Iranian Army were defeated and an attacker like the US moved into Iran’s territory, the IRGC, the Iranian Army, and the Basij are now organized and trained to fight a much more dispersed war of attrition in which force elements would disperse and scatter, carrying out a constant series of attacks on US forces wherever they deployed as well as against US lines of communication and supply.

If the government allowed such force elements to act as their current doctrine calls for, such elements would have great independence of action rather than relying on centralized command. The IRGC and IRIA have clearly paid close attention to both the limited successes that Saddam’s Fedayeen had against the US advance on Baghdad, and the far more successful efforts of Iraqi insurgents and militias in attacking US and other coalition forces following the fall of Baghdad.

One technique such forces attempt to organize for and practice is using cities and built-up areas as defensive areas that provide concealment and opportunities for ambushes, and for the use of swarming tactics, which forces an attacker to disperse large numbers of forces to try to clear and secure given neighborhoods. Connell indicates that some 2,500 Basij members staged such an exercise in the Western suburbs of Tehran in February 2007. Once again, Iran drew on the lessons of Iraq; however, Iran also employed such tactics with great success against Iraqi forces during the Iran-Iraq War, and it has closely studied the lessons of urban and built-up area fighting in Somalia and Lebanon.

Other reports indicate that the IRGC remains the center of Iran’s hardline security forces but has become steadily more political and bureaucratic, and most of its forces now have no combat experience – it has been more than twenty years since the end of the Iran-Iraq War in 1988. Corruption and careerism are growing problems, and the IRGC’s role in the defense industry has led to financial abuses. As such, it is the elite elements of the IRGC that give it real meaning beyond serving the regime’s need to control its population.

There are different opinions over the conventional role of the IRGC relative to other Iranian forces. One source identifies a trend that will eventually render the regular army more technologically advanced and more modern in general. Accord to this report, the IRGC, by contrast, is to focus on “less traditional defense duties,” such as enforcing border security, commanding the country’s ballistic missile and potential weapons of mass destruction forces, and preparing for a closing of the Strait of Hormuz militarily.<sup>241</sup>

## The IRGC Air Force

The air force of the IRGC is believed to operate Iran's three Shahab-3 intermediate-range ballistic missile units, and may have had custody of its chemical weapons and any biological weapons.

It is not clear what combat formations exist within the IRGC, but the IRGC may operate Iran's ten EMB-312 Tucanos. It also seems to operate many of Iran's 45 PC-7 training aircraft, as well Su-25s and some Pakistani-made trainers at a training school near Mushak, but this school may be run by the regular air force. It has also claimed to manufacture gliders for use in unconventional warfare. These are unsuitable delivery platforms, but could at least carry a small number of weapons.<sup>242</sup>

**Figure 21** reflects that Iran and the IRGC, by extension, has recently invested heavily in UAVs and UCAVs in recent years. Iranian officials regularly make lofty claims about these crafts' capabilities, but there are scant data available regarding their operational history and performance. Consequently, it is difficult to assess their capabilities in any kind of hypothetical conflict with US forces. These data do show, however, that the IRGC perceives R&D into UAV/UCAV technology is a worthwhile investment, and a complement to its asymmetric tactics and strategy.

**Figure 21: Iranian UAVs and UCAVs**

Prime Manufacturer	Designation	Development/Production	Operation	Payload Wt.	Endurance (hr)	Range	Ceiling (ft)	Mission
Asr-e Talai	Alamdar MAV	Underway						Surveillance
Famas	Black Eagle							
Faraz Asia Technologies Company	Faraz-2 MAV				0.5	10		Surveillance
FARC	Sobakbal	Underway	Deployed	.35	2	2.7-13.5 mi	19,686 ft	Surveillance
Ghods Aviation Industries	Ababil (Swallow) Mohajer-1/2/3/4 (Mirsad-1, Doma, Hodhod) Saeqeh-1/2 Tallash (Endeavor and Hadaf) Mohajer-5 Shekarchi (Hunter)	Completed Completed Completed	Deployed Deployed Deployed Deployed	45		240 30-150	4,268 3,352	Attack (RPGs) Aerial Target Target drone – aka “Target 3000”
HESA (aka IAMI)	Ababil variants (?) Hadaf-1 Shahed 129	Completed Underway Completed	Deployed Deployed?		1.5+ <24	30-120 <1700-2000	3,048	Aerial target; RSTA; long-range surveillance Aerial Target Long-range surveillance, ground targeting
Unknown	Hazem	Completed						Air defense, reconnaissance,
Unknown	Karrar (Striker) Nazir (Harbinger)	Underway		Disputed, 115-700		1,000		Hunter-killer Hunter-killer
Unknown	R’ad (Thunder)							Hunter-killer
Unknown	Pehpad Stealth	Underway Underway	Testing Deployed			700		Hunter-killer R/S – announced 2/10/2007
Sharif University of Technology	Shahbal	Underway		5.5		12	3,000	Reconnaissance/ surveillance

Source: Adapted by Alexander Wilner using the AIAA 2011 Worldwide UAV Roundup



### **The IRGC Naval Forces**

The IRGC's naval branch is reported to have some 20,000 men, including marine units of some 5,000 men. It plays a critical role in Iran's military competition with the US and the Southern Gulf states that it merits special attention.

#### *Force Levels*

Key aspects of the IRGC Naval Branch are summarized in **Figures 22 to 25**:

- **Figure 22** describes the special role of the naval branch of the IRGC and the critical role it can play in asymmetric warfare in the Gulf.
- **Figure 23** shows Iran's strength in naval asymmetric warfare capabilities relative to that of other Gulf navies. It should be noted, however, that few Iranian Navy ships have had modern refits, and efforts to upgrade them have had mixed success – particularly in creating integrated command centers and sensor suites.
- **Figure 24** shows Iran's strength in mine warfare capabilities relative to that of other Gulf navies. These totals disguise the fact that almost any ship can lay or drop mines, but mine hunting and sweeping is far more difficult than in the past, and other Gulf navies have very little mine sweeping capability.
- **Figure 25** shows Iran's amphibious warfare capabilities relative to other Gulf navies.

The IRGC naval forces have at least 40 light patrol boats, 10 Houdong guided missile patrol boats armed with C-802 anti-ship missiles, a battery of HY-2 Seersucker land-based anti-ship missiles, up to 20 mini submarines, and swimmer delivery vehicles (SDVs). Some of these systems could be modified to carry a small CBRN weapon, but are hardly optimal delivery platforms because of their limited-range payload and sensor/guidance platforms that are unsuited for delivering such sensitive devices.

#### *Structure and Organization*

The IRGC's naval branch has bases in the Gulf, many near key shipping channels and some near the Strait of Hormuz. These include a wide variety of facilities at Al-Farsiyah, Halul (an oil platform), Sirri, Abu Musa, Bandar-e Abbas, Khorramshahr, and Larak. It also controls Iran's coastal defense forces, including naval guns. It used to deploy HY-2 Seersucker land-based anti-ship missile unit deployed in five to seven sites along the Gulf coast, but these may seem to either be in the process of being replaced by C-700 or C-800 series missiles and different coastal-surveillance radars.

The IRGCN is operational in the Gulf and the Gulf of Oman (with most of its forces in the former<sup>243</sup>), and could operate elsewhere if given suitable sealift or facilities. It has five different commands within the Gulf, including a new fifth naval command designed to cover Abu Musa and the Tunbs – the three islands it took from the UAE and which have become the center of several recent air and sea confrontations between Iranian and UAE forces.<sup>244</sup>

Mohammad Ali Jafari, the Commander of the IRGC inaugurated the fifth naval command zone of the IRGC in early November 2012. He stated that the IRGC was, “increasing, expanding, and improving the expert capabilities in the naval defense” in all five zones and that, “The fifth zone of the Guards; naval force is one of the naval defense chains which is in particular responsible for the defense of the Iranian islands in the Gulf.”<sup>245</sup>

As of 2011, Iran's navy has sent warships into the Mediterranean and claimed intentions of sending ships into the Atlantic, but such a capability is doubtful.<sup>246,247</sup>

### *Probable Effectiveness*

Unlike IRGC ground forces, which have seen limited deployment in Iraq and Afghanistan, IRGCN has not had significant combat experience with asymmetric warfare since the late 1980s, except for efforts limited to the occasional harassment of British and American naval vessels in the Gulf. The IRGCN does, however, carry out large-scale exercises and demonstrates capabilities that it might be able to deliver conventional weapons, bombs, mines, and CBRN weapons into ports and other logistics centers as well as critical infrastructure including oil and desalination facilities.

The IRGCN has also stressed its mine warfare capability. The Iranian government sponsored Iran Daily Brief noted on November 23, 2012 that,<sup>248</sup>

Rear Admiral Ali Fadavi, Commander of the Iranian Revolutionary Guard Corps Navy (IRGCN), underlined Iran's powerful presence in the waters of the Persian Gulf as the main deterrent to potential enemy aggression. He said that the US forces are afraid of the IRGC mines floating in parts of the region.

After showing Iran's power during the Iran-Iraq War, "Our mines have made such an impact on the Americans that they are still living in fear of them." Fadavi added, "Today, with the powerful and mighty Iranian presence, the US is no more posing for aggression (in the region) and is now feeling rather paralyzed and helpless." Fadavi called dominance over the Persian Gulf and destabilizing it a US tool for controlling the world. He noted that Washington aims to continue its presence in the region and by doing so threatens the energy security of the oil-dependent countries.

Fars News Agency added a short summary to its report, underlying that "Asymmetric warfare is especially appropriate for the Persian Gulf and the Strait of Hormuz, which are too narrow for the huge US warships to maneuver. That means mines, anti-ship missiles and swarm attacks by small heavily armed boats. Fars News Agency also hailed Iran's mine capability, "Iran is believed to have as many as 3,000 sea mines. Some estimates go as high as 5,000... It's the fourth largest sea mine arsenal in the world after the United States, Russia and China (more details regarding the types of mines).

There is no way to reliably assess current training levels and readiness of every element of the Naval Branch of the Guards. Outside observers do not feel their exercises are particularly sophisticated, however, that they reflect a high degree of training and coordination, effective use of communications or communications discipline, or much real-world exercise cooperation with the Navy and Air Force. They feel overall proficiency is low in the level of wartime C<sup>4</sup>IS&R capability, how consistent given units are in their effectiveness, ability to operate in combined arms and joint warfare, quality of training and planning for different types of hybrid and asymmetric warfare, and ability to carry out complex operations in the face of active US and Arab Gulf military opposition.

The IRGC's naval branch is more active than many other elements of Iran's forces, but there is little meaningful data on its real world capabilities. Like all the elements of the IRGC and other Iranian military forces, it does seem heavily dependent on conscripts (albeit less so than the IRGC's land forces), and to have encountered problems in terms of its military politics and leadership.

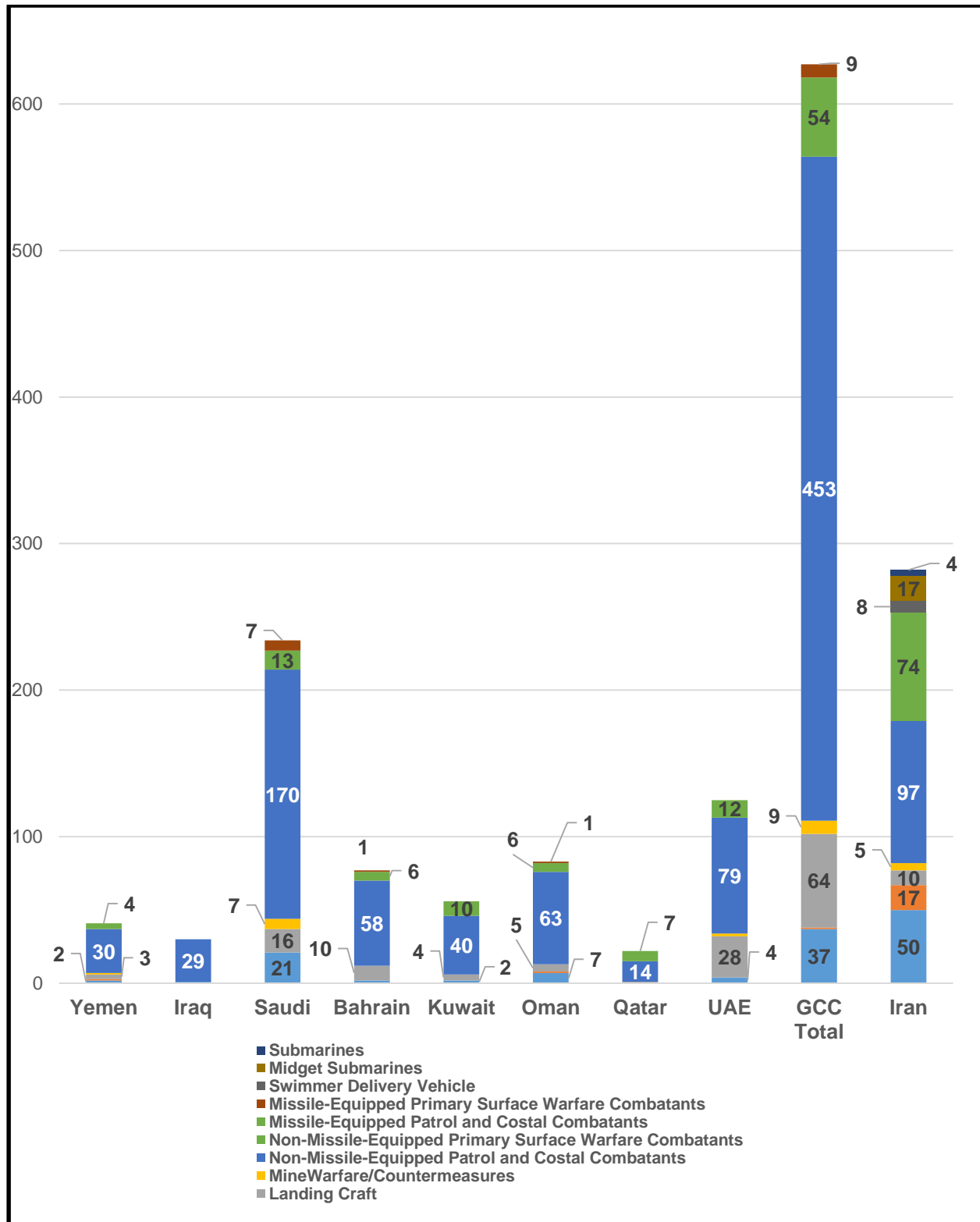
Its forces can carry out extensive raids against Gulf shipping, amphibious assaults with the land branch of the IRGC against objectives like the islands in the Gulf, and raids against Saudi Arabia or other countries on the southern Gulf coast. They give Iran a major capability for asymmetric warfare. The Guards appear to be represented unofficially in some embassies, Iranian businesses and purchasing offices, and other foreign fronts as part of the broader Iranian intelligence network, as well as for their own military intelligence and purchasing needs.

This is why naval warfare experts stress that decisive efforts should be made to destroy Naval Guards forces the moment they clear more towards combat, arm for mine warfare, and begin to close within range of their anti-ship missiles and torpedoes. The consensus seems to be that the sooner such forces are destroyed, the shorter and more effective the campaign against them should be, and that once combat starts or seems inevitable, the US and its allies should act.

***Figure 22: The Impact of the IRGC Naval Guards: Force Strength, Roles, and Missions***

- The IRGC naval branch consists of approximately 20,000 men, including marine units of around 5,000 men.
- The IRGC is now reported to operate all mobile land-based anti-ship missile batteries and has an array of missile boats; torpedo boats; catamaran patrol boats with rocket launchers; motor boats with heavy machine guns; mines; Yono (Qadir)-class midget submarines; and a number of swimmer delivery vehicles.
- The IRGC naval forces have at least 40 light patrol boats and 10 Houdong guided missile patrol boats armed with C-802 anti-ship missiles.
- The IRGC controls Iran's coastal defense forces, including naval guns and an HY-2 Seersucker land-based anti-ship missile unit deployed in five to seven sites along the Gulf coast.
- IRGC was put in charge of defending Iran's Gulf coast in September 2008 and is operational in the Gulf and the Gulf of Oman, and could potentially operate elsewhere if given suitable sealift or facilities.
- Can deliver conventional weapons, bombs, mines, and CBRN weapons into ports and oil and desalination facilities.
- Force consists of six elements: surface vessels, midget and unconventional submarines, missiles and rockets, naval mines, aviation, and military industries.
- Large numbers of anti-ship missiles on various types of launch platforms.
- Small fast-attack craft, heavily armed with rockets or anti-ship missiles.
- Additional numbers fast mine-laying platforms; during Tanker War, modified commercial vessels for this purpose as well, complicating intelligence efforts.
- Enhanced subsurface warfare capability with various types of submarines and sensors.
- Small, mobile, hard-to-detect platforms, such as semi-submersibles and unmanned aerial vehicles.
- Specialized training.
- Customized or purpose-built high-tech equipment.
- Better communications and coordination between fighting units than IRIN fleet.
- Timely and potentially well-integrated intelligence and effective counterintelligence/deception.
- Enhanced ability to disrupt enemies' command, control, communications, and intelligence capability.
- Doctrinal focus on the importance of initiative, and the avoidance of frontal engagements with large US naval surface warfare elements.
- Means to mitigate the vulnerability of even small naval units to air and missile attack.
- Numerous staging areas throughout Iran's south coast near key shipping channels and Strait of Hormuz and organized Basij militia among the local inhabitants to undertake support operations.
- Facilities include Al-Farsiyah, Halul (an oil platform), Sirri, Abu Musa, Bandar-e Abbas, Khorramshahr, and Larak.
- Iran recently started constructing new naval bases along the coasts of the Gulf and the Sea of Oman for an "impenetrable line of defense."
- On October 27, 2008, Iran opened a new naval base at Jask, located at the southern mouth of the Strait of Hormuz, a strategic chokepoint for Gulf oil.

**Figure 23: Iranian Naval Capabilities for Asymmetric Warfare- Part One (Graph)**

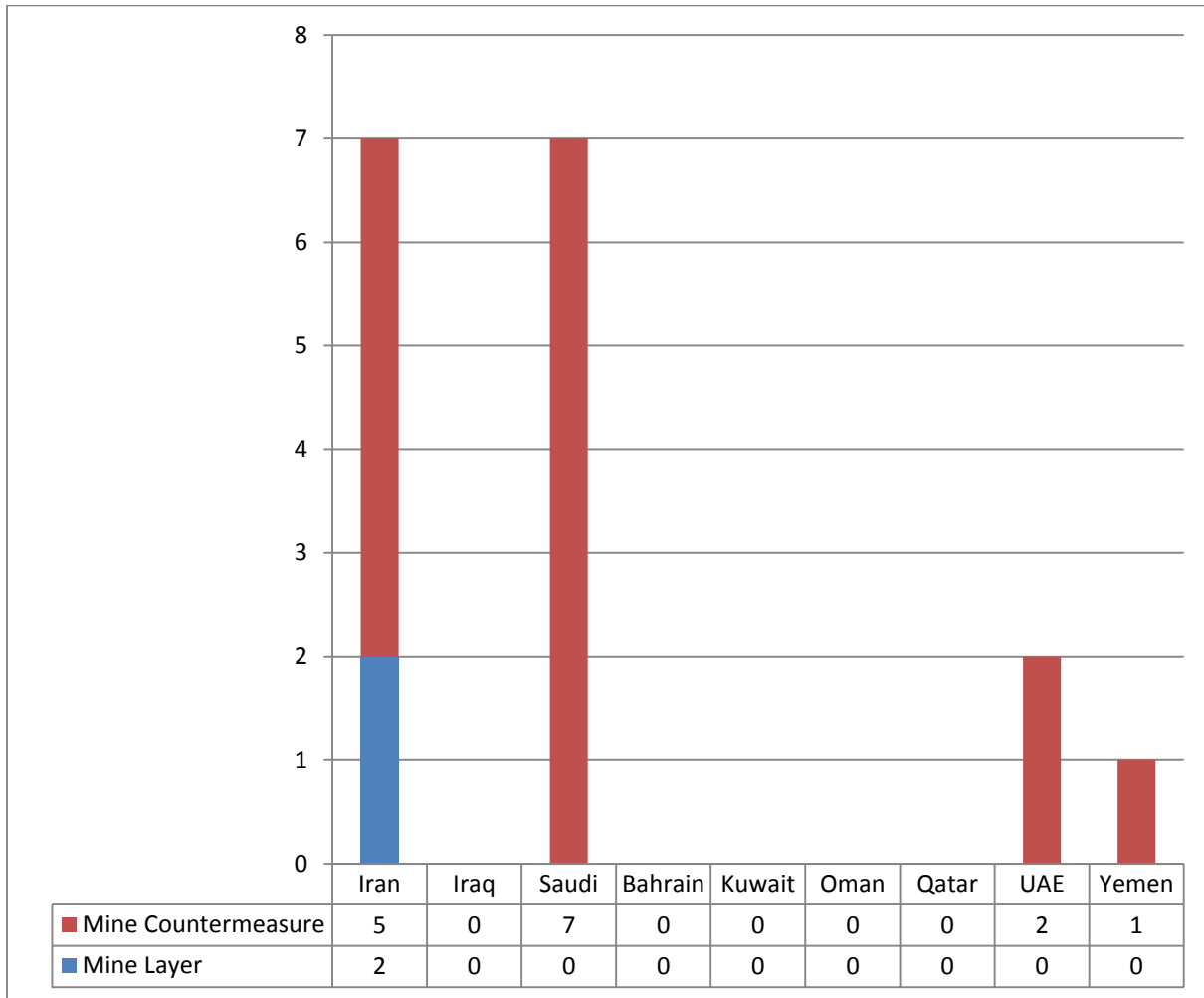


**Figure 23: Iranian Naval Capabilities for Asymmetric Warfare- Part Two (Table)**

	Yemen	Iraq	Saudi	Bahrain	Kuwait	Oman	Qatar	UAE	GCC Total	Iran
Support	2	1	21	3	2	7		4	38	50
Landing Ships	1					1			1	17
Landing Craft	3		16	10	4	5	1	28	64	10
Mine Warfare/Countermeasures	1		7					2	9	5
Non-Missile-Equipped Patrol and Costal Combatants	30	29	170	58	40	63	14	79	453	97
Non-Missile-Equipped Primary Surface Warfare Combatants									0	
Missile-Equipped Patrol and Costal Combatants	4		13	6	10	6	7	12	54	73
Missile-Equipped Primary Surface Warfare Combatants			7	1		1			9	
Swimmer Delivery Vehicle									0	8
Midget Submarines									0	17
Submarines									0	4

Source: Adapted from IISS, The Military Balance 2013

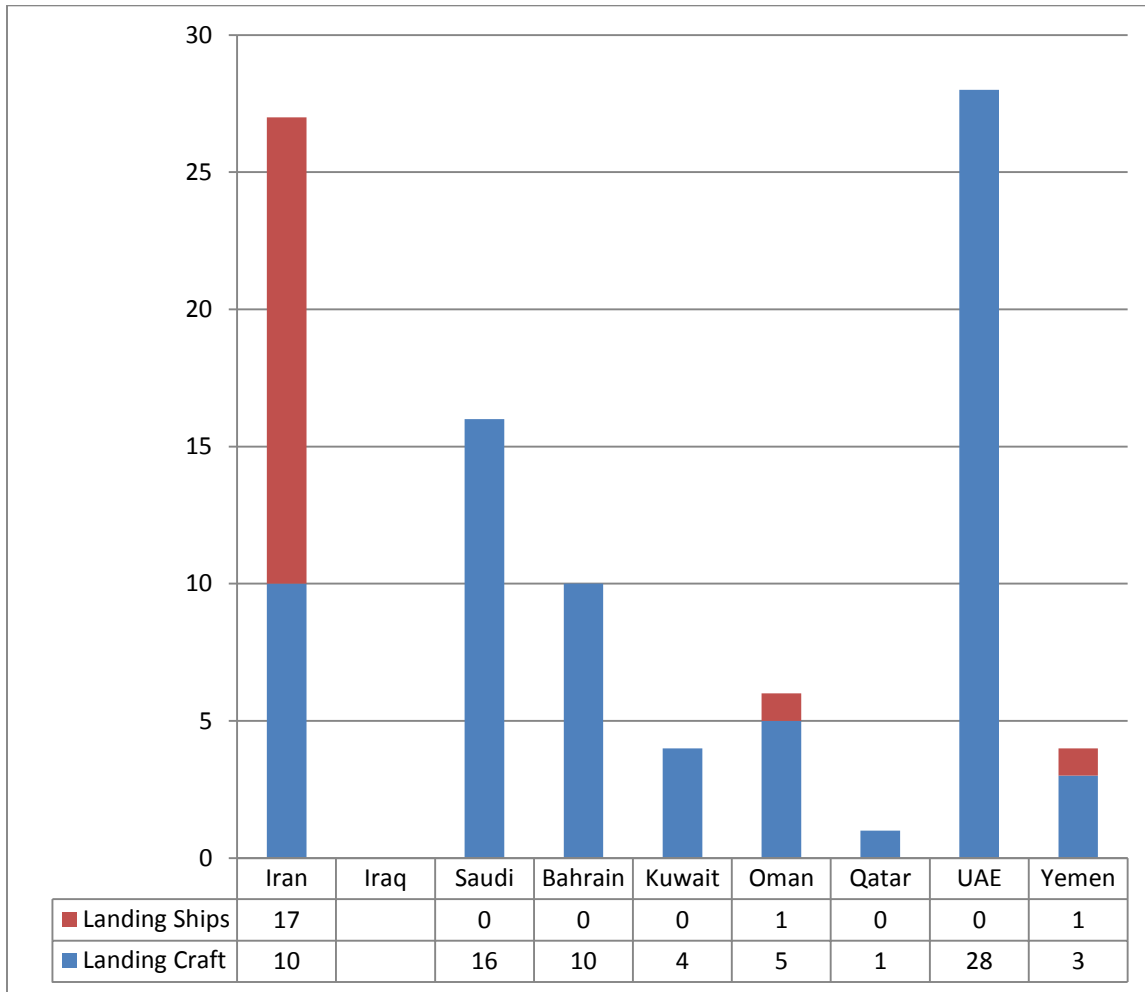
**Figure 24: Iranian Capabilities for Mine Warfare**



Source: Adapted from IISS, The Military Balance 2013

Note: 2 Iranian landing ships have a mine-laying capacity

**Figure 25: Iranian Amphibious Warfare Capabilities**



Source: Adapted from IISS, The Military Balance, various editions; Jane’s Sentinel series; Saudi experts



## **The Basij or Basij-e Mostaz'afin (“Mobilization of the Oppressed”) or IRGC Ground Resistance Force**

The Basij were founded in 1979 as a paramilitary organization to support the revolution, becoming the recruitment source for many of the human waves Iran used during the Iran-Iraq War from 1980-1988. Some estimates put their total numbers in the millions during the war, but there are no reliable estimates of their size during this period. In 1990, Supreme Leader Khamenei ordered the IRGC to incorporate the Basij as its fifth branch, along with the Air Force, Ground Force, Navy, and al Quds Force.

Today, some elements of the Basij are largely an internal security force. They are used to suppress opposition movements and create counter-demonstrations, and they function more as a mobilization base for the regime than as part of Iran's asymmetric forces and an element that plays a direct role in competition with the US. Broadly speaking, Basij members are organized in two ways. First, they are assigned to one of over 40,000 Basij bases (Paygha-e Basij) throughout Iran; they are then grouped into combat battalions and incorporated with the IRGC's Ground Force. Since the 2009 Presidential elections, they have been further incorporated into the IRGC.<sup>249</sup>

The Basij was one of the most influential forces in the regime's successful suppression of opposition demonstrations at the height of 2009 Green Movement-led protests. According to Basij expert Saeid Golkar, “Political authorities have consequently relied more on coercive forces, including the Basij, to accomplish their goals. The regime dramatically expanded the Basij's branches after 2009. For example, there were only six Basij areas (Nahie-Basij) in Tehran in 2009; by 2010, there were twenty-two. To keep Basij members loyal to the regime, political authorities have supported the expansion of Basij participation in business. The regime buys the allegiance of its commanders and members with powerful economic incentives, tying their livelihoods to the regime's survival.”

The Basij now have specialized subunits – largely for political control and to enforce the regimes religious restrictions on social behavior – at every level from the school to professions to the mosque. Members include professional cadres and indoctrinators, volunteers, and part timers assigned to a mobilization base.

One needs to be careful about the credibility of how well structured and disciplined the Basij are today, but an estimate in Wikipedia provides a good picture of the structure the Basij now has *in theory*.<sup>250</sup>

Basij form the fifth branch of the Army of the Revolutionary Guard, and the “three main armed wings” of the Basij are the Ashoura and Al-Zahra Brigades, the Imam Hossein Brigades (composed of Basij war veterans who cooperate closely with the IRGC ground forces) and the Imam Ali Brigades (which deal with security threats). According to Radio Free Europe, the “backbone” of the Basij comprises 2,500 Al-Zahra battalions (all women) and Ashura battalions (male), numbering 300–350 personnel each. The IRGC aims to arm 30 percent of these battalions with semi-heavy and heavy weapons. However, all members of the battalions are trained to use light arms and rifles. They are trained “in riot-control tactics and how to deal with domestic uprisings, “and officially tasked with “defending the neighborhoods in case of emergencies.”

In addition, since 2007 the Basij have established “30,000 new combat cells, each of them 15-20 members strong, named Karbala and Zolfaqar”. The Karbala cells are combat units attached to the IRGC. They are tasked to carry out suicide operations and other asymmetrical warfare activities. These units would be the ones tasked to carry out the types of less sophisticated asymmetrical operations envisioned in the US. The cells “cooperate closely” or in emergency situations are

“controlled by” the Revolutionary Guard. The current commander of the Basij is Mohammad Reza Naqdi, who replaced Hossein Taeb in October 2009. Hossein Taeb was appointed commander of the Basij on July 14, 2008. The first deputy commander, General Mirahmadi, was formally installed on 4 September 2005. The Tehran commander is Seyyed Mohammad Haj Aqamir. The deputy Basij commander for Tehran, General Ahmad Zolqadr, was formally installed on 5 September 2005; the new Basij commander in Tabriz, Brigadier General Mohammad Yusef Shakeri, on 29 September 2005.

Estimates of the number of Basij vary, with its leadership giving higher figures than outside commentators. ...According to a former commander of the Basij, Brigadier General Mohammad Hejazi, the strength of the force in 2004 was 10.3 million. By 2007, its strength stood at 12.6 million. The current commander of the Basij, Hasan Taeb, told the semi-official Fars news agency on November 25 that the force now numbers 13.6 million, which is about 20 percent of the total population of Iran. Of this number, about 5 million are women and 4.7 million are schoolchildren. ... In fact the Basij may be able to mobilize no more than 1.5 million men and women of military age.

Other elements have long received paramilitary training and have participated in exercises where the Iranian Army, IRGC, and Basij cooperate to resist a US-led invasion. Beginning in 2004–2005, these elements began to be used in urban defense exercises, and supposedly were organized into some 2,000 “Ashura battalions” that had “riot-control responsibilities” and an internal security role, as well as a contingency mission of creating local resistance in the face of a supposed outside (US) invasion. These were to some extent imitations of the Ashura Brigades that Iran had created for its human wave operations during the Iran-Iraq War.

These forces have since been made part of what Iran calls the IRGC Ground Resistance Force. In October 2009 Iranian media (FARS News Agency) reported on October 11, 2009, that,<sup>251</sup>

“The ground resistance force was formed after a number of changes in the (structure of) the IRGC,” Iran’s Armed Forces Chief of Staff Major General Hassan Firouzabadi said, speaking on the sidelines of a meeting on psychological warfare here in Tehran today. The Basij (volunteer) forces have recently merged into the IRGC ground forces for better coordination. “The IRGC’s ground resistance force has been formed (as part of the IRGC’s ground force) based on a two-year-long planning and Basij’s defensive battalions and units will be reorganized and used in accordance with this planning,” Firouzabadi added. He noted that IRGC ground forces are scheduled to utilize Basij’s capabilities in a more specialized and integrated form.

An Iranian opposition group reported later in the opposition online journal *Rooz* that Hassan Firouzabadi, the Joint Chief of Staff of the Armed Forces had confirmed the plan, saying that,<sup>252</sup>

after two years of study we concluded to change the IRGC’s structure, for the Basij to work in areas such as software work and the propagation of the Basiji culture in society, and to delegate the tasks, duties and mobilization of Basij units to a new called the IRGC Ground Resistance in order to increase expertise among the units...in continuation of structural changes in the IRGC, the Basij resistance force will soon be merged into the IRGC ground force to boost coordination.”

The same *Rooz* report stated that,<sup>253</sup>

This news agency, which is affiliated with the Islamic Propaganda Organization, also reported, “Following the appointment of Major General Mohammad Ali Jafari to head the IRGC, we witnessed major changes in the IRGCs structure, the new stage of which is set to begin soon.” Following the appointment of Mohammad Ali Jafari to replace Yahya Rahim Safavi as the IRGC chief, structural changes were implemented in the IRGC and were accompanied by repeated changes in leadership. In the first round, a large number of IRGC commanders were dismissed or reassigned, while new provincial IRGC units were established and the Basij resistance force was placed under the complete control of the IRGC. During that round, the various IRGC units were first dissolved and reassigned to 29 new units, one for each province, plus two additional units for the city and province of Tehran. The new units were charged with the task of confronting “foreign and

domestic threats against the nation.” The plan, according to Mohammad Ali Jafari, “divides the country into defense mosaics,” based on which “each defense mosaic will be used to confront threats in that specific area at a particular time.”

...While many analysts link changes in the IRGC’s structure in the past two years to the recent presidential election and the institution’s role in suppressing popular protests, recent changes and reassignments in IRGC’s leadership confirms that link, particularly in light of the background of some commanders and their involvement in recent events. In this connection, last Sunday Ayatollah Khamenei appointed Mohammad Reza Naghdi to head the Basij. Naghdi is a notoriously brutal military commander and the former head of Iranian police’s counter-intelligence unit with a controversial background in torturing prisoners. Ayatollah Khamenei also praised Hojjatoleslam Taeb, the former Basij chief who played an instrumental role in suppressing protesters, for his “dedicated efforts.”

...Simultaneous with recent developments in the IRGC, the state-run ILNA news agency and the Alef news website (managed by Ahmad Tavakkoli) reported last Monday and Tuesday that the IRGC’s intelligence division will be transformed into the “Intelligence Organization.” In its detailed report on this transformation, ILNA claimed that Hossein Taeb had been chosen to head the IRGC’s Intelligence Organization because of his background, adding, “in light of the enemy’s focus on soft warfare and the necessity of strengthening the security-intelligence apparatus to confront it, it can be discerned that the promotion of the IRGC’s intelligence division to an Intelligence Organization led by Taeb, who is familiar with various kinds of intelligence and soft warfare...will bestow new responsibilities on the new organization.” Hossein Taeb served as the ministry of intelligence’s counter-intelligence director under Ali Fallahian. He joined the IRGC after being dismissed from the ministry and played a prominent role in suppressing popular protests in opposition to election results and the arrest of reformist leaders.

While the details in the Rooz report cannot be independently evaluated, US official source have confirmed that the IRGC Ground Resistance Force is becoming more active. The US Secretary of Defense summarized the role of the Al Quds Force as follows in his April 2012 report to Congress on Iranian Force,<sup>254</sup>

In early 2012, the Islamic Revolutionary Guards Corps Ground Resistance Forces (IRGCGRF) conducted a series of foe exercises in northeastern and central Iran. The exercises—Martyrs of Unity in the Northeast and Supporters of Velayat and Valfajr in central Iran—were the first significant exercises conducted by the IRGCGRF since its reorganization in 2008. The three exercises consisted of combined-armed maneuvers and were meant to show the IRGCGRF’s offensive and defensive capabilities while offering limited training value for the participating units.

The regime also increasingly uses the Basij to try to mobilize its youth. As the US State Department report on human rights, issued on April 8, 2011 notes,<sup>255</sup>

In November 2009 according to the Mehr news agency, the leader of the student Basij organization, Mohammad Saleh Jokar, announced that 6,000 Basij units would be created in the country’s elementary schools. Jokar said the action aimed to expand and promote Basij and revolutionary ideals among young persons. He added that approximately 4.5 million students and 320,000 teachers were members of the Basij. An RFE report noted that the Basij also began a program to register baby girls for later training in the Basij Hossein Haj Mousaee Basij unit. The report also discussed “resource centers” being built at elementary schools to prepare children to join the units.

The Basij also play a growing role in Iran’s economy, extending its influence to nearly every area of business, from construction, mining, and real estate to banking and finance and the stock market. Greater control over Iran’s economy has allowed the organization to have a greater influence on domestic politics and Iranian society writ large. Former President Rafsanjani encouraged Iranian military and security forces to become involved in business transactions as a way to generate independent income. Many IRGC commanders, including General Mohsen Rezaei, also encouraged Basijis to enter the economic realm, stating, “Today, your duty as basijis is to attack economic trenches and conquer the economic peaks.”

The Basij Cooperative Foundation (BCF), which began as a welfare organization for Basiji war veterans, has become a business conglomerate. It operates at the municipal level throughout Iran, throws its support behind hard-line political candidates, helps the regime keep control over the bazaar, and was even influential in getting President Ahmadinejad elected as Mayor of Tehran. The Supreme Leader's continual support to the Basij helps ensure that a critical mass within his most trusted security forces are solidly vested in the survival of the regime.

The internationalization of the Basij is evident in its growing role outside Iran, evident in several companies, such as a security firm called Negar-ye Naser, and Iran's largest transportation company – Javan Sir-e Asar. As Basij-run companies tied to the regime, they represent attractive vehicles for money laundering, smuggling, and a host of other illicit activities. As the Basij business network continues to grow, so too will its financial support network, led by Iran's largest "private" financial institution, Mehr Bank, controlled and owned by the BCF.

After Ahmadinejad's victory, the IRGC and Basij control over the economy continued to grow. According to former Basij commander, General Mohammad Hejazi, "Ahmadinejad is a Basiji, and in his government, basijis play an important role." Many governmental contracts were assigned to the Qorb-e Basij, including the building of the border wall to prevent drug smuggling in the Sistan and Baluchestan provinces. The Qorb-e Basij merged with the IRGC construction headquarters (Khatam al-Anbia) in 2007 following structural changes in the IRGC.

In 2007, the Supreme Leader took the critical step of endorsing a major privatization program, amending Article 44 of Iran's constitution. Ahmadinejad's government seized on the opportunity to encourage the Basij to expand its involvement in the economy. Golamhossein Elham, Ahmadinejad's government's spokesperson, stated that "the basijis must capture factories and take over the country's true economic power, not letting it fall into the hands of certain monopolistic and capitalistic groups in the era of privatization.

These efforts must also be kept carefully in mind in putting too much emphasis on the scale of Iranian popular resistance to the regime and on the impact of activities like social networking. The regime has its own tools for winning and enforcing loyalty from Iran's young men, and indicators like cell phone polls indicate that these regime efforts can often be effective. Between patronage, familial ties, and ideological recruitment, the regime has proven very effective at developing its own civil society, giving it a large pool of manpower that would likely side with the Islamic Republic in the face of internal unrest or invasion.

It also takes minimal training to use a force of this kind to repress demonstrations, police civilian areas, and assist the security forces – although as the Arab Spring demonstrated, under certain conditions poor-quality policing can feed further protests. Small arms, minimal equipment, and motivation are often more than enough to deal with popular resistance by those who lack arms, training, and enough experience to avoid being easy targets.

At the same time, there is little evidence to show that the Basij/IRGC-GRF have the training, equipment, and structure to be a highly effective paramilitary force. Its training may have been revised as a reaction to the growing tensions over Iran's nuclear programs, but it still seems largely at the token level and as much an effort at political indoctrination as one at developing actual warfighting capability.

This was evident in October 2012, when the Basij placed a recruiting advertisement on its website calling for full-time Basij in Tehran and the surrounding areas. A few of the conditions were that volunteers had to profess loyalty to Islam and the regime's concept of "velayat-e faqih," and be prepared to carry out tasks assigned by the IRGC. At the same time, large-scale training exercises by Basij units appear more as a public display of force designed to dissuade potential protestors in the run-up to the 2013 presidential elections than serious training to counter external threats – the stated purpose of the most recent exercise in October.

### **Al Quds Force**

Iran uses its intelligence service, its diplomats and attaches, "private" citizens, business covers, and foreign nationals to support its efforts at asymmetric and political warfare and to study American capabilities and vulnerabilities. It has built up a specialized force to work with outside state and non-state actors called the Al Quds Force. The size and strength of this force is shown in **Figure 26**.

#### ***Organization and Structure***

The Al Quds Force is a branch of the IRGC that is assigned to special operations and unconventional warfare, which gives it priority in terms of funding, training, and equipment. It plays a major role in giving Iran the ability to conduct unconventional warfare overseas using various foreign movements as proxies and is thought to be composed of 5-15,000 men.

In January 2007, Iran's Supreme National Security Council (SNSC) decided to place all Iranian operations in Iraq under the command of the Al Quds Force. At the same time, the SNSC decided to increase the personnel strength of the Al Quds Force to 15,000.<sup>256</sup> Exact force details are unknown, but reports indicate that hundreds of Al Quds Force personnel took part in Iranian operations in Iraq between 2003 and 2011.<sup>257</sup>

The Al Quds Force is under the command of Brigadier General Qassem Soleimani and has supported non-state actors in many foreign countries. These include Hezbollah in Lebanon, Hamas and the Palestinian Islamic Jihad in the Gaza Strip and West Bank, Shi'ite militias in Iraq, and Shi'ites in Afghanistan. Links to Sunni extremist groups like Al Qaeda have been reported, but never convincingly confirmed.

On January 11, 2007, the director of the Defense Intelligence Agency stated in testimony before the US Senate Select Committee on Intelligence that Iran's Islamic Revolutionary Guards Corps-Qods Force had the lead for Iranian transnational terrorist activities, in conjunction with Lebanese Hezbollah and Iran's intelligence agencies.<sup>258</sup> Other sources believe that the primary mission of the Al Quds Force has been to support Shi'ite movements and militias; such aid and weapons transfers seem to have increased significantly since the spring of 2007.

The US Secretary of Defense summarized the role of the Al Quds Force as follows in the annual report on Iranian forces to Congress that he issued on June 29, 2012,<sup>259</sup>

Iran established the Islamic Revolutionary Guards Corps-Qods Force in 1990 to provide arms, funding, and paramilitary training to extremist groups. We assess with high confidence that during the past three decades Iran has methodically cultivated a network of sponsored terrorist surrogates capable of targeting US and Israeli interests; we suspect this activity continues. Iran's unconventional forces are trained according to its asymmetric warfare doctrine and would present a formidable force while defending Iranian territory.

...through the IRGC-QF, Iran provides material support to terrorist or militant groups such as Hamas, Lebanese Hezbollah, the Palestinian Islamic Jihad, the Taliban, and Iraqi Shia groups.

In close cooperation with Syria, Iran has provided Lebanese Hezbollah with increasingly sophisticated weapons, including a wide array of missiles and rockets that allow Hezbollah to launch weapons from deeper in Lebanon or to strike Israel. We judge that the Iranian military trains Hezbollah and Palestinian extremist groups throughout the region.

Iran provides funding and possibly weapons to Hamas and other Palestinian terrorists in the Gaza strip.

The 2013 version of the same report entitled, “Annual Report on Military Power of Iran,” has been released to news organizations, but not the public. News reports do quote a section regarding the Al Quds force,<sup>260</sup>

We assess with high confidence that during the past three decades, Iran has methodically cultivated a network of terrorist and militant groups capable of targeting regional and extra-regional targets...IRGC-QF is Iran’s principal interlocutor to Hezbollah.

Some reports indicate that the budget for the Al Quds Force is classified, directly controlled by the office of Supreme Leader Khamenei, and is not reflected in Iran’s general budget. The active elements of the Al Quds Force operate outside Iran’s borders, although it has bases both inside and outside of Iran. The Al Quds Force’s troops are divided into specific groups or “corps” for each country or area in which they operate. There are Directorates for Iraq; Lebanon, Palestine, and Jordan; Afghanistan, Pakistan, and India; Turkey and the Arabian Peninsula; Asian countries of the former Soviet Union; Western nations (Europe and North America); and North Africa (Egypt, Tunisia, Algeria, Sudan, and Morocco).

The Qods Force Department’s approximately 4,000-strong Ansar Corps is responsible for Afghanistan and Pakistan. It has bases along Iran’s Eastern border with Afghanistan and supports covert action among Afghan Shia in Iran and various Afghan groups, including the Taliban, in Afghanistan. The Ansar Corps is one of the largest Qods Force units, largely due to the war in Afghanistan since 2001. Qods Force commander, Brigadier General Gholam Reza Baghban, based in Sistan and Baluchistan province on the Iran-Afghanistan border, was designated by the Department of the Treasury as a drug kingpin for his role in supporting the drugs-for-arms trade between Iran and Afghan insurgent groups, including the Taliban. However, there is not enough open source information to substantiate allegations of officially sanctioned involvement of either the Qods Force or other Iranian government entities in narcotics trafficking.

Department 1000, also known as the Ramadan Corps, is responsible for Qods Force operations in Iraq, including Kurdistan. Given the extent of fighting along Iran’s Western border during the Iran-Iraq War, the Ramadan Corps relies on a well-established and extensive series of bases, garrisons, and training centers. It remains one of the most important Qods Force units, heavily involved in arming, training, and guiding Iraqi Shia groups loyal to Iran. Department 1000 benefits from the existence of heavy military infrastructure that dates back to the Iran-Iraq War, from training centers to garrisons and bases. The Ramadan Corps will continue to be critical as Iran seeks to build a resilient power base of Shia influence throughout the country. It has already proven highly useful as a staging ground for Iran and Hezbollah-led support to Syria.

Department 2000 or the Lebanon Corps handles Qods Force operations in the Levant. It is arguably the most important Qods Force unit given the importance of Iran’s relationship with Lebanese Hezbollah. Through this unit, the Qods Force provides financial assistance to Hezbollah-run programs in Lebanon (e.g., development and reconstruction committees, pro-Iran cultural and

religious organizations, schools and other community infrastructure in Shia-controlled areas, etc.). Department 2000 officers also oversee much of Iran's ongoing involvement in Syria in support of the Assad regime, including military advisors and even direct military support alongside Hezbollah-led units.

Department 2000 also plays a leading role in directing Iran's support to Palestinian resistance groups such as PFLP-GC and Hamas. Department 2000 works closely with Iranian-sponsored entities that operate throughout the Levant, in addition to Hezbollah-run front companies and organizations that provide support to Hezbollah operatives, which some experts believe are affiliated with Hezbollah's External Security Organization.

Department 6000 oversees Qods Force operations in Africa. The focus was traditionally on the Arab countries of North Africa, but attention has shifted to other areas, most notably East and West Africa. Iran's focus on Sudan has increased significantly in recent years, from Qods Force training camps located outside Khartoum to port calls by Iranian naval ships. In addition to providing training to the Sudanese government, Department 6000 supports resistance groups in Africa such as the Houthi rebels in Yemen.

Iran provides weapons, training (political, ideological, and military) and economic development aid. The latter often comes in the form of military-industrial projects such as factories in Africa for manufacturing weapons, ammunition, and other military items. Managing relationships with corrupt, criminal dictatorships in West Africa that facilitate covert operations have also become a focal point of Department 6000 operations.

These are some of the most important Qods Force units. There are also functional departments such as Department 400, or Special External Operations. Department 400 is responsible for carrying out lethal activities such as assassinations and providing support to violent armed groups such as those aligned with the Assad regime in Syria. Department 12000 is also involved in special operations, which includes organizing, financing, and training armed groups. Both are suspected of working closely with Iran's closest non-state allies, most notably Hezbollah. The Al Quds Force has offices or "sections" in many Iranian embassies, which are closed to most embassy staff. It is not clear whether these are integrated with Iranian intelligence operations or if the ambassador in each embassy has control of, or detailed knowledge of, operations by the Al Quds staff. However, there are indications that most operations are coordinated between the IRGC and offices within the Iranian Foreign Ministry and MOIS. There are separate operational organizations in Lebanon, Turkey, Pakistan, and several North African countries. There are also indications that such elements may have participated in the bombing of the Israeli Embassy in Argentina in 1992 and the Jewish Community Center in Buenos Aires in 1994 – although Iran has strongly denied any involvement in either.<sup>261</sup>

The Al Quds Force seems to control many of Iran's training camps for extremists and guerilla warriors in Iran and countries like Iraq, the Sudan and Lebanon. The civil war in Syria, and Iran's support of Assad, has led to the creation of at least three Alawite militia training centers in Syria that reports indicate are operated by the Al Quds force. In the Sudan, the Al Quds Force is believed to run a training camp of unspecified nature, while in Lebanon its operations have ranged in size, from 2-3 camps during the Lebanese Civil War to smaller groups of "councilors" today. It also has at least four major training facilities in Iran. The Al Quds Force has a main training center at Imam Ali University at the Sa'dabad Palace in northern Tehran where troops study advanced asymmetric warfare techniques and terrorist operations.

There are other training camps in the Qom, Tabriz, and Mashhad governorates and in Lebanon and the Sudan. These include the Al Nasr camp for training Iraqi Shi'ites and Iraqi and Turkish Kurds in northwest Iran, and a camp near Mashhad for training Afghan and Tajik revolutionaries. The Al Quds Force seems to help operate the Manzariyah training center near Qom, which recruits foreign students in the religious seminary and which seems to have trained some Bahraini extremists. Some foreigners are reported to have received training in demolition and sabotage at an IRGC facility near Isfahan, in airport infiltration at a facility near Mashhad and Shiraz, and in underwater warfare at an IRGC facility at Bandar-e Abbas.<sup>262</sup>

US experts report that these camps and other facilities provide specialized training in bomb making, use of IEDs, use of computers, sabotage, and use of ATGMs and MANPADs. This training has been extensive for Iraqi Shi'ite militias. Most training of Hezbollah operatives is now believed to occur in Lebanon. The level of paramilitary and military training for Bahrainis, Kuwaitis, Saudis, Yemenis, and other Arab Shi'ites is unclear.



*Figure 26: The Iranian Al Quds Force*

- Comprised of 5,000 - 15,000 members of the IRGC (Increased size of force in 2007)
- Equivalent of one Special Forces division, plus additional smaller units
- Special priority in terms of training and equipment
- Plays a major role in giving Iran the ability to conduct unconventional warfare overseas using various foreign movements as proxies
- Control many of Iran's training camps for unconventional warfare, extremists, and guerillas
- Has offices or "sections" in many Iranian embassies throughout the world
- Conduit for Iranian aid to Palestinian terrorist groups such as Hamas, Lebanese Hezbollah, Iraq-based militants, and Taliban fighters in Afghanistan.
- Primary pipeline for Iranian provision of lethal support to Iraqi insurgents, including weapons, training, funding, and guidance.
- Relies on non-governmental organizations, religious and cultural foundations, and a wide and expanding network of companies in support of Qods Force operations
- Al Quds Force continues to provide Iraqi and Afghan militants with:
  - Specialized training
  - Funding
  - Iranian-produced advanced rockets
  - Sniper rifles
  - Automatic weapons
  - Mortars
  - Improvised Explosive Devices (IEDs)
  - Explosively formed projectiles with a higher lethality rate than other types of IEDs
- Potentially involved with reported Iranian support for the Taliban since 2006, including small arms and associated ammunition, rocket propelled grenades, mortar rounds, 107mm rockets, plastic explosives, and possibly man-portable air defense systems (MANPADs).
- Israeli defense experts continue to state that they believe the IRGC and Al Quds Force not only played a major role in training and equipping Hezbollah, but may have assisted it during the Israeli-Hezbollah War in 2006, and played a major role in the Hezbollah anti-ship missile attack on an Israeli Navy Sa'ar-class missile patrol boat.
- Widely believed to have been behind the plot to assassinate Saudi Arabia's ambassador to the US, Adel al-Jubeir in 2011.

### *Al Quds in Iraq*

The growing tension between Sunni and Shi'ite both threatens Iran and gives it a potential opportunity in Arab states with significant Shi'ite minorities or majorities. Iran has extensively exploited such tensions to increase its influence in Iraq and Syria, and its arms transfers and aid efforts have had an important impact on the source of the Syrian civil war.

The Al Quds Force has provided significant transfers of weapons to Shi'ite (and perhaps some Sunni) elements in Iraq. These include the shaped charge components used in some IEDs and the more advanced components used in explosively formed projectiles (EFP), including the weapon assembly, copper slugs, radio links used to activate such devices, and the infrared triggering mechanisms. These devices are very similar to those used in Lebanon, and some seem to operate on the same radio frequencies. Shaped charge weapons first began to appear in Iraq in August 2003, but became a serious threat in 2005.<sup>263</sup> US experts believe there is definitive evidence that key components were made in Iran and that Iran played a major role in expanding the IED threat in Iraq.

On January 11, 2007, the US military in Iraq detained five men accused of providing funds and equipment to Iraqi insurgents. According to US military sources, these men had connections to the Al Quds Force.<sup>264</sup> On January 20, 2007, gunmen dressed as US soldiers entered the Provincial Joint Coordination Center in Karbala and killed and wounded several US servicemen. According to some sources, including US military intelligence, the gunmen were members of the Al Quds Force, possibly seeking to gain hostages for bargaining with America's recent detainment of several Al Quds Force officers.<sup>265</sup> The sophisticated planning and execution of this attack made it unlikely that any Iraqi group was involved in it.<sup>266</sup>

General David H. Petraeus, the commander of US forces in Iraq at the time, stressed the growing role of the Al Quds Force and the IRGC in testimony to Congress in April 2007. He noted that the US had found Al Quds operatives in Iraq and seized computers with hard drives that included a 22-page document that had details on the planning, approval process, and conduct of an attack that killed five US soldiers in Karbala. Petraeus noted,

“They were provided substantial funding, training on Iranian soil, advanced explosive munitions and technologies as well as run-of-the-mill arms and ammunition... in some cases advice and in some cases even a degree of direction... Our sense is that these records were kept so that they could be handed in to whoever it was that is financing them... And again, there's no question... that Iranian financing is taking place through the Al-Quds force of the Iranian Republican Guards Corps.”<sup>267</sup>

Cables suggest that Soleimani provided funding and weapons for various Iraqi Shi'ite insurgent groups, creating a mosaic of militias to bleed US forces on the ground. This role gave the Al Quds Force major political influence as well as combat power because it was often called in by the militias to mediate when disputes between them broke into open warfare.<sup>268</sup>

The Al Quds Force played a less direct role in training and arming Shi'ite extremist militias after US Special Forces quietly put increasing pressure on Al Quds officers supporting the IED campaign in Iraq after 2006 and after Prime Minister Maliki launched the Charge of the Knights offensive against Sadrist and other Shi'ite militias in Baghdad and the South of Iraq in March 2008.<sup>269</sup>

They have been a key part of the Iranian effort in Iraq, however, working with other elements of the IRGC, Iranian diplomats, and Iranian intelligence services like the MOIS. They remain linked

to Sadrist and other militias, as well as elements of the Iranian security services, and have some ties to officials in both the Prime Minister's office and Shi'ite parties, as well as to the security elements of Iranian sponsored companies and religious facilities. Their role has been more advisory and passive, but with growing instability in Iraq and the success of radical Sunnis to execute successful attacks in Anbar province, it is possible that they will provide the Shi'ite government with support to fight off the Sunni uprising. The current deputy chief-of-staff of the Iranian military has implicitly offered such support by saying they would offer "military equipment and advisers"<sup>270</sup> if Iraq requested it.

### *Syria*

Preserving an allied Assad regime in Syria is a key priority for Iran. Iran has provided trainers, volunteers, arms, and money to the Assad regime in Syria since the uprisings there began to become a civil war in 2011.

Iran has confirmed that it has forces active in Syria assisting the Al-Assad regime in "maintaining order." It is widely assumed that Al Quds units composed the heart of this force. According to the website Iranian Diplomacy, in its monograph on IRGC Commander Mohammad Ali Jafari,

Recently, in response to the question about his assessment of the IRGC's presence in Syria, Mohammad Ali Jafari said: "In the past, the Revolutionary Guards had a unit called Islamic Movement which helped the deprived people. But, at the present time, the Qods forces with the objective of supporting the oppressed people, implements this task. This is while in the past, some of the members of this force were present in Lebanon and Syria, but this presence did not and does not mean we have a military presence in these countries.... Of course, we will render our intellectual aid to Syria as long as we can and we are proud to be able to support Syria and share with them our experiences, but as I stated before, our presence does not mean a military presence."

These statements made by the IRGC Commander, which were followed by numerous reactions, were considered to confirm IRGC military intervention in Syria. This is while Commander Jafari has said, "The presence of IRGC personnel in Syria is only to give consultations to them". Associated Press interpreted his statements as the following: The IRGC Commander, while confessing to the presence of "Qods Forces" members in Syria said that Iran helps Syria in economic issues and renders its consultative services. He has also said that Iran's intervention in case of attack against Syria "depends on the conditions".<sup>271</sup>

It is not clear, however, that such support has involved a major Iranian or Al Quds presence beyond the creation of training camps for the pro-Assad Alawite militia, Iranian support of Hezbollah volunteers from Lebanon, and a series of selective Iranian aid efforts responding to specific requests from the Syrian regime in areas where it has urgent needs or Iran can act as an effective cover.

Recent reports and the killing of a senior IRGC commander in an Israeli air strike in February 2013 underscore the aid that Iran is providing Syria. It is apparent that the IRGC is not only involved in training Syrian regime forces, but advising and supplying those forces as well. According to a report by Reuters, Iran has been using civilian airliners flying through Iraqi airspace.<sup>272</sup> General Mattis, former CENTCOM commander, noted in an interview that, "Absent Iran's help, I don't believe Assad would have been in power the last six months."<sup>273</sup> While the depth of that aid is not known it is assumed to be substantial, as Iran has a major vested interest in keeping Assad in power and supplying Hezbollah.

### *Lebanon*

The role of Iran in supporting the Hezbollah in Lebanon is summarized in **Figure 27**. Israeli defense experts state the IRGC and Al Quds Force played a major role in forming, training and equipping Hezbollah and assisted it more directly in the Israeli-Hezbollah War in 2006. Israeli intelligence officers claim to have found command and control centers, a missile, and rocket fire-control center in Lebanon that were of Iranian design. They believe the Al Quds Force played a major role in the Hezbollah anti-ship missile attack on an Israeli Navy Sa'ar-class missile patrol boat and that Iran and Syria supported Hezbollah with intelligence from facilities in Syria during the fighting.

The Al Quds Force – along with other elements of the IRGC – now plays a continuing role in training, arming, and funding Hezbollah in Lebanon and has begun to support Shi'ite militia, Taliban, and other anti-coalition networks activities in Afghanistan. Experts disagree on the scale of such activity, how much support it has provided to Sunni groups compared to Shi'ite groups, and over the level of cooperation in rebuilding Hezbollah forces in Lebanon since the cease-fire after the Israel-Hezbollah War of 2006. The debates focus on the scale of such activity and the extent to which it has been formally controlled and authorized by the Supreme Leader and the President, however, and not over whether some level of activity has been authorized.

*Figure 27: Iran and Hezbollah*

- Hezbollah was originally formed in 1982 by Iranian seminarians from a variety of anti-Israeli groups that developed in the wake of the 1982 Lebanon War.
- Iran's aid packages (arms and money) to Hezbollah are said to exceed \$100 million per year.
- Iran has gone from supplying small arms, short-range missiles, and training to providing more sophisticated long-range missiles, IEDs, and other higher-end weaponry
- Iran exported thousands of 122-mm rockets and Fajr-4 and Fajr-5 long-range rockets to Hezbollah in Lebanon, including the Arash with a range of 21–29 kilometers.
- Between 1992 and 2005, Hezbollah received approximately 11,500 missiles and rockets; 400 short- and medium-range pieces of artillery; and Aresh, Nuri, and Hadid rockets and transporters/launchers from Iran.
- In 2005, Iran sent Hezbollah a shipment of large Uqab missiles with 333-millimeter warheads and a supply of SA-7 and C-802 missiles, two of which were used in an attack on an Israeli ship.
- Iran also supplied Hezbollah with an unknown number of *Mersad* UAV's that Hezbollah briefly flew over the Israel-Lebanon border on November 7, 2004, and April 11, 2005; at least three were shot down by Israel during the summer 2006 war.
- Iran supplied Hezbollah advanced surface-to-air missiles, including Strela-2/2M, Strela-3, Igla-1E, and the Mithaq-1. The same missiles were reported to have been used to target Israeli helicopters.
- During Hezbollah's summer 2006 war with Israel, Iran resupplied the group's depleted weapons stocks, enabling it to rearm and recover quickly from its military losses.
- Since the 2006 War, Iran has reportedly supplied various types of rockets, reportedly increasing its stockpile to 27,000 rockets, more than double what Hezbollah had at the start of the 2006 war.
- Among the deliveries were 500 Iranian-made "Zelzal" (Earthquake) missiles with a range of 186 miles, enough to reach Tel Aviv from south Lebanon. Syria may have delivered Scuds.
- Fighting in Lebanon in 2006 seems to have increased Hezbollah's dependence on Iran. Both Hezbollah's loss of weapons and fighters in the conflict with Israel and the resulting damage to its reputation and position within Lebanon made it more reliant upon Iran.
- Elements of Hezbollah planned attacks in Egyptian Sinai; operate in Iraq
- MOIS support to Hezbollah cyber operations against U.S. and Israel
- Iranian and Hezbollah collaboration in illicit financial activities around the world to evade sanctions and in support of lethal activities carried out by Hezbollah's External Security Organization, the Qods Force, and MOIS

### ***Gaza and the Palestinians: The November 2012 Fighting as a Case study***

The past relationship between Iran and Hamas and the PIJ is summarized in **Figure 28**. The current relationship between the Al Quds Force, Hamas, and the Palestinian Islamic Jihad is speculative. It seems to have been weakened to some degree by the fact most Palestinians favor the Sunni cause in Syria rather than Assad. However, Iranian arms shipments have clearly been directed at aiding anti-Israeli elements in the Gaza Strip, and have continued to provide components and technical aid in build long-range rockets as well as rocket components.

There is considerable evidence of continuing outside Iranian aid in training, weapons, and funding to hostile Palestinian elements in both the Gaza Strip and the West Bank. Open sources do not, however, provide a clear picture of the exact scale of such activity.

The level of activity that Hamas and other hardline and extremist Palestinian groups were able to mount during the fighting between Israel and Palestinians in Gaza during November 2012 also serves as a warning that even indirect aid can give Iran considerable leverage.

Preliminary Israeli estimates indicated that the following exchanges took place during the eight-day period between the start of the fighting and a ceasefire agreement on November 21, 2012:<sup>274</sup>

- **Impact of 8 days of conflict**
  - **1,506** targets in Gaza were hit during the Israeli operation.
  - **933** rockets from Gaza hit Israel since November 14<sup>th</sup> (875 in open areas, 58 in urban areas).
  - **421** rockets fired from Gaza were intercepted by the Iron Dome system (84% is the rate of successful interceptions. Below 7% is Hamas' accuracy with regards to hitting populated areas within Israel). The highest cost Iron Dome round, however, costs roughly \$100,000 per intercept.
  - **Over 140** Palestinians were killed (source: Hamas Health Ministry in Gaza), with many more injured.
  - **5** Israelis, including one soldier, were killed. **240** injured.
  - **24** hours after the ceasefire was the timeframe stated in the agreement for dealing with the issue of opening Gaza's border crossing and allowing the movement of people and goods into and out of the strip.
  - **0** was the number of past ceasefires that have held together since Hamas took over control of the Gaza Strip in 2007.
- **IDF Targeting**
  - Over the course of Operation Pillar of Defense, the IDF targeted over 1,500 terror sites including 19 senior command centers, operational control centers and Hamas' senior-rank headquarters, 30 senior operatives, damaging Hamas' command and control, hundreds of underground rocket launchers, 140 smuggling tunnels, 66 terror tunnels, dozens of Hamas operation rooms and bases, 26 weapon manufacturing and storage facilities and dozens of long-range rocket launchers and launch sites.
- **Senior Hamas Operatives Targeted:**
  - Ahmed Jabari, head of Hamas' military wing – targeted on November 14
  - Hab's Hassan Us Msamch, senior operative in Hamas' police – targeted on November 15
  - Ahmed Abu Jalal, Commander of the military wing in Al-Muazi – targeted on November 16
  - Khaled Shaer, senior operative in the anti-tank operations – targeted on November 16
  - Osama Kadi, senior operative in the smuggling operations in the southern Gaza Strip – targeted on November 17
  - Muhammad Kalb, senior operative in the aerial defense operations – targeted on November 17
  - Ramz Harb, Islamic Jihad senior operative in propaganda in Gaza city – targeted on November 19

- **Number of Rocket Launches Toward Israel During the Operation by Day:**
  - November 14: 75 rockets
  - November 15: 316 rockets
  - November 16: 228 rockets
  - November 17: 237 rockets
  - November 18: 156 rockets
  - November 19: 143 rockets
  - November 20: 221 rockets
  - November 21 (Until 21:00): 130 rockets
  
- **Total Rockets Launched Towards Israel:**
  - Total number of rockets launched from the Gaza Strip: 1,506 rockets
  - Number of rockets hit open areas: 875 rockets
  - Number of rockets hit urban areas: 58 rockets
  - “Iron Dome” interceptions: 421 rockets
  - Failed launching attempts: 152 rockets
  
- **Israeli Casualties:**
  - Fatalities: 5
  - Injuries: 240

Hamas and the PIJ have not provided similar detailed estimates, and it is unclear how many of the 10,000 to 12,000 rockets estimated to be held by Hamas and other factions in Gaza came from Iran or had Iranian components versus supplies from countries like Libya and home-made rockets.

It is clear, however, that new round of fighting involved Iranian-made Fajr-5 75-kilometer range rockets that could reach Tel Aviv and Israel for the first time, as well as new 45-kilometer range Grad 122mm rockets that could reach far deeper into Israel than in the past.<sup>275</sup> It is also clear that some of these transfers came via Iranian arms shipments through the Sudan that seem to have been coordinated by the Al Quds force.<sup>276</sup> Finally, it is clear – as was the case in Iraq and Lebanon – that Iran supplied at least some man-portable surface-to-air missiles, and anti-tank guided missiles.

Iran has scarcely kept its support for the Palestinian operation secret although Iranian claims do disagree. Ali Larijani, the speaker of the Iranian Majlis, stated on November 21, 2012, that,

“We proudly state that we have supported the Palestinian people and Hamas. We proudly declare that we will be with the Palestinian people in the most difficult situations. We are proud that we have provided military and financial support to the Palestinians. Arab countries who sit and hold summits must know that the Palestinians do not need lectures and summits... Arab countries should provide military aid to the Palestinians.”<sup>277</sup>

A day later, the pro-Iranian government Iran Daily Brief reported that,<sup>278</sup>

Semi-official Fars News Agency ran a commentary analyzing the recent Fajr-5 (meaning ‘dawn’ in Farsi) rocket launches against Israel. It reads: “Israel was shocked and later pushed to reassess its calculations after Palestinian groups responded... with stunning retaliation, hitting Tel Aviv, a move that eventually made Israel start an overture and change its war rhetoric about an impending ground incursion into Gaza... Israel was surprised when Palestinians in Gaza targeted Tel Aviv, 70km from the foremost Palestinian territories, for the first time.

The longest range recorded by Palestinian missiles had been 40km. Things grew worse for Israeli leaders when Hamas later targeted Herzliya (11km north of Tel Aviv). The strategic weapon that has changed the scene of the war between Israel and Palestinians is a rocket known as Fajr-5.

Fajr-class rockets, Fajr-5 (Dawn 5) in particular, are known and described by global military experts, as a weapon system appropriate for asymmetric wars, where the military power of the conflicting sides differs

significantly. The Fajr-1 rocket is a solid fuel, 107mm rocket with a range of 8.3km and can be mounted on speed boats. Fajr-2 is the second generation of Fajr-class rockets. It is a 240mm rocket that can hit targets at a range of 25km. Fajr-3 is an optimized version of 240mm Fajr-2 rockets, but with a range of 43km and an 85kg payload. The rocket is launched by Fajr-3 rocket launchers and can provide heavy firepower in asymmetric wars. The world-class Fajr-5 is a solid fuel, non-fixed wing 333mm rocket designed and optimized for artillery missions to hit enemy's command and control, logistics, radar, communication, economic and political centers.

It is a rocket with 75km range, a payload of 178kg and speed of 1009 meters per second. The two-stage version of Fajr-5 rockets are the most effective and longest range of the Fajr-class rockets and can be used against enemy targets such as command and control centers, logistics, radar, communication, airports, plants and economic and political centers. The commander of the IRGC has confirmed that Iran transferred the technology for Fajr-5 missiles to the Palestinian resistance in Gaza.

The patterns in the fighting in Gaza not only show how Iran can use limited, low cost efforts like the Al Quds force and small arms transfers to have an impact on Israel, they serve as a warning to other countries. Like the earlier Hezbollah attacks on Israel, the Palestinian attacks set a model that would be far more serious in attacks against other countries with less advanced defenses than Israel.

Israel was able to take advantage of a layered defense system called Iron Dome that had been funded in cooperation with the US, at a cost of \$205 million to the US in 2010, with \$680 million in additional funding for an Iron Dome 2 system in 2013.<sup>279</sup> Iron Dome was credited with an 84% to 88% success rate against the 350 rockets that would have landed in populated areas – the system ignores rockets that would land in unpopulated areas – although the system was never tested by massed volleys against a single target.<sup>280</sup>

Israel is now seeking to rapidly deploy an improved system called David's Sling which would defend against longer-range artillery rockets with higher apogees and closing speeds and potentially fill the gap between its Arrow 2 and developing Arrow 3 TBMD systems and the shorter range Iron Dome system. David's Sling was originally to be deployed in 2013, but was rushed into preliminary service in November and December 2012.<sup>281</sup>

The need for such efforts is clear. Press reports indicate that Israeli satellites showed that Iran began new shipments of rockets to Hamas almost immediately after the fighting broke out in November 2012.<sup>282</sup> It is unclear what level of defense the combined capabilities of Iron Dome, David's Sling, and Arrow 2/3 can provide against such transfers in the future, and several key elements of Israel's layered defense system are developmental and present major problems in test and evaluation which can probably only be fully resolved by observing their behavior in combat.

Israel also faces a far more serious threat from a rearmed Hezbollah than it did in Gaza, although satellite photos indicate that Iran has far closer ties to Hezbollah in Lebanon than to Hamas – although Hamas has not split with Iran even though it has relocated its headquarters from Syria to Qatar and has formally denounced the Assad regime.<sup>283</sup> Hezbollah fired some 4,000 rockets into Israel in 2006, and on November 25, 2012, its leader – Hassan Nasrallah congratulated Hamas on winning a “clear victory” against Israel, warned that the Hezbollah could now carry out massive long-range rocket attacks on Israel, and stated that, “How is it (Israel) going to stand thousands of rockets that will fall on Tel Aviv and other areas if it launches an aggression against Lebanon [...] The battle with us is going to be all over occupied Palestine [...] From Kiryat Shemona to Eilat [...] From the border with Lebanon to the frontier with Jordan to the Red Sea [...] The Israelis should listen well to me.”<sup>284</sup> Nasrallah has claimed that Hezbollah now has some 20,000 rockets



of various types and IDF experts feel the number is much higher, and that Iran has also transferred more ATGMs, MANPADs, and other weapons.

It is not only Israel that may need to listen. Iran can provide similar transfers to non-state or state actors anywhere in the region. Iran can send Al Quds advisors or training centers to help train foreign forces and extremists, and/or provide transfers of other systems and components like ATGMS, MANPADS, shaped charge lenses and advanced triggering devices for IEDs, and anti-ship missiles.

Iran also does not need to exercise tight control over such transfers as long as the forces involved are unlikely to turn on Iran, and it does not need for the recipient to be some kind of proxy or under Iranian control. The very threat – or known existence – of such transfers gives Iran at least some leverage even if it has no ability to push the recipient into acting on Iranian direction or command. Moreover, no other country in the region has either Israel's anti-rocket defense systems or level of military capability to deal with other threats like ATGMS, MANPADS, shaped charge lenses and advanced triggering devices for IEDs, and anti-ship missiles.

*Figure 28: Iran and Hamas*

- **Iran openly supported Hamas and spoke out against the lack of support for Hamas by Arab regimes throughout the Middle East during engagements between the IAF and Hamas in late 2008 and early 2009 in Gaza.**
- **Iran provided training, arms and logistical support to Hamas during the fighting in Gaza between Israeli forces and Hamas militants in late December 2008 and early January 2009.**
- **Israeli intelligence sources continued to report Iranian efforts to rearm Hamas after a ceasefire agreement was reached in January 2009.**
- **Arms transfers come through Sudan and Sinai.**
- **Level of Iranian financial support uncertain.**
- **In February 2012, the Prime Minister of Hamas, Ismail Haniya, visited Iran. The visit likely reflects the continued good relations and ties between both entities, as well as Iran's continuing support to Hamas.**
- **In the November 2012 clash between Israel and Hamas stated it used Iranian Fajr-5 missiles to strike deeper into Israel. It also used Iranian 122mm rockets that it claimed had been produced by Hamas.**

### *Yemen*

Experts disagree about the level of Iranian influence and action in Yemen. However, the Al Quds Force is generally believed to be Iran's link to the Houthis and other rebellious groups in Yemen, controlling the training, weapons smuggling, and other assistance. Open sources do not indicate whether Al Quds operatives are on the ground in Yemen, or provide largely off-shore support.

Iran was thought to be behind the recent seizure of a boat in their territorial waters that was carrying large amounts of munitions, and was possibly destined to the Houthis. Among the cargo of ammunition were 10 Chinese-made QM-1M MANPADs, 95 RPG-7s, 10 SA-7 MANPADs, 17,000 blocks of Iranian-made C4, 48 Russian PN-14K night vision goggles, and 10 LH80A laser range finders, made by Iran Electronics Industries according to their placards.<sup>285</sup>

One key problem is the experts believe the Al Quds Force carefully tailors its support to given countries, and does not follow a set pattern of deployment or support. It is often content to play a limited role, training and equipping largely from the outside, providing small active and sleeper cells, and supporting movements that aid Iran's interests even if they otherwise oppose Iran. The Al Quds Force also seems to encourage individual risk-taking knowing that Iran can normally disavow any such efforts if they fail and take advantage of them if they succeed.

### *The Gulf and Other Area States*

The same is true of Iranian and Al Quds links to native Shi'ite groups in Bahrain, Kuwait, Saudi Arabia, and other states. These links are examined in detail in other reports in this series, and the scale of such links is highly controversial. US and other outside experts do believe, however, that Iran is deliberately manipulating such tensions and has played a role in activities like setting up a bomb making facility in Bahrain, and Kuwait detected an active Al Quds intelligence cell in 2010.

It is often difficult, however, to confirm reports of Al Quds activity and separate its role from other elements of the IRGC and branches of Iranian intelligence. Some reports of its role seem dubious and others seem to credit the Al Quds Force without clear evidence that it actually has the lead. This often occurs in Iranian embassies around the world where Iranian defense attaches and other military personnel are assumed to be Qods Force officers. This occurs partly because Iran has relied on known Qods Force officers to serve as ambassadors in countries that are strategically important to Iran and where Iran engages in covert action. This has been the case in Syria, Lebanon, Iraq, Afghanistan, as well as the Gulf.

The Al Quds Force is probably responsible for Iran's support of subversive activities in Bahrain. While Tehran is not the cause of Bahrain's domestic upheavals, it has taken advantage of the upheaval engendered by the Arab revolutions. While the Shi'ites on each side of the Gulf do not always agree, Iran sees the unrest as a chance to weaken the GCC. For example, an Iranian-supported bomb making facility in Bahrain was discovered during the course of this year that had support from Al Quds operatives.

Iran has also used the Al Quds force for assassinations. On October 11, 2011, the Al Quds Force gained attention as a result of its role in planning Iran's alleged assassination plot against the Saudi ambassador to the US, Adel Al-Jubeir.<sup>286</sup> Several members of the Force have been sanctioned by the US for their role in this attempt, and it may reflect a new willingness of Iran to take risks in confronting the US and Arab states.

Finally, Saudi, UAE, and other regional experts feel the Al Quds force is also being used to train dissidents in sabotage, both as part of Shi'ite challenges to Sunni regimes, and possibly to provide a contingency capability to act in conjunction with IRGC covert action or raids. Sabotage training could be a particularly attractive way of conducting unattributable, low cost attacks on Southern Gulf petroleum facilities, utilities and desalination plants, communications, and other critical facilities. Outside experts question the level of such Iranian activity, but some Gulf security experts see this threat as being at least as serious as Iranian asymmetric or other forms of direct attack.

### *Other Regions*

It is unclear whether the Al Quds Force is the driving factor in Iranian efforts outside the region, and in areas like Latin America. There seems to be a tendency to assume that the fact it plays some role makes it the leading element of Iranian action when this may come from the IRGC or Iranian intelligence. There is no question, however, that Al Quds operatives operate in areas outside the Middle East.

### **The MISIRI, MOIS, or VEVAK**

Iranian intelligence plays a role in Iran's asymmetric warfare efforts, though its role is less understood than that of the IRGC. The Ministry of Intelligence and National Security (MOIS), also known as VEVAK (Vezerat-e Ettela'at va Amniyat-e Keshvar) and VAJA, serves as Iran's secret police and primary civilian intelligence agency. MOIS officers play a key role in monitoring and suppressing political opposition at home, neutralizing political opposition abroad, and running covert networks to import weapons, parts, military technology, and other sensitive, sanctioned items and to export weapons, training, ideology, and various forms of support to proxies. MOIS networks rely on officers embedded in Iranian embassies around the world under official cover, and make use of out-of-embassy platforms such as business front companies and educational and religious foundations for officers under non-official cover.

The MOIS has a particularly heavy role in domestic counter-intelligence, monitoring reformists affiliated with the Green Movement and its offshoot, as well as the employees in all Iranian government ministries. Not long after the 1979 Revolution, the regime recognized the importance of basic departments within the Shah's intelligence service known as SAVAK. One key component of the SAVAK was counter-intelligence, and counter-intelligence organizations (Sazman Hefazat-e Ettelaat) now exist in all branches of government. This includes the military and security apparatus. They are independent from the military command and said to be under the control of the Supreme Leader.

These organizations work closely with MOIS and have the lead responsibility for identifying foreign spies who are attempting to penetrate Iranian government ministries, as well as Iranians themselves who may be suspected of working with foreign intelligence services. The heads of these organizations are usually clerics and military personnel, all working directly under the Supreme Leader's Office. According to an Iranian expert, since 1983 three of the heads of the IRGC Counterintelligence Organization have been clerics (Hojatolislam Ali Saidi, Hojatolislam Gholam Hossein Ramezani, and Hojatolislam Hossein Taeb), while the others have been IRGC military personnel (Generals Ahmad Vahidi, Muhammad Kazemi, and Morteza Rezaei). The Ministry of Defense Counter-intelligence Organization has been led by a similar mix of IRGC officers and clerics (Gen. Hassan Zolghadnia, Gen. Ali Shamshiri, and the aforementioned Hojatolislam Ramezani), as has the Police Counter-intelligence Organization

(Gen. Muhammad Reza Naghdi, Hojatoleslam Ramezani, and Gen. Muhammad Kazem Moazenyan). However, all the counter-intelligence chiefs within the various branches of the Artesh have been regular army officers.

Each of these organizations works under the auspices of the “Commander-in-Chief’s General Office of Counterintelligence” (Daftar-e Omoumi-ye Hefazat va Ettelaat-e Farmandehi-e Kol-e Qova). Since 1989, there have been three heads of this office, all of them Army officers (Generals Muhammad Ali Nazaran, Abdollah Najafai, and Seyyed Hesam Hashami).<sup>287</sup>

Since the 2005 election of President Ahmadinejad, the MOIS has struggled with the IRGC for power and influence, and even to preserve its primacy in certain areas of intelligence collection. This reached a peak in 2009 when Ahmadinejad blamed then Minister of Intelligence Hojjatoleslam Gholam Hossein Mohseni-Ejei and the MOIS for failing to control Green Movement protests in the aftermath of the presidential elections. Ejei was removed, and Supreme Leader Khamenei called on the IRGC to lead efforts to restore order at home.

The MOIS was sidelined further when the Basij merged into the IRGC Ground Forces and created the IRGC Intelligence Organization, led by then Basij commander and long-time Khamenei ally, Hojjatoleslam Hossein Taeb. The IRGC-led effort successfully dismantled the Green Movement, and the MOIS emerged with less authority over internal security matters.

It is not yet clear how this situation will change under President Hassan Rouhani, who was elected on June 14, 2013. President Rouhani seems to be more moderate than Ahmadinejad, but it is unclear that he will be more tolerant – or be allowed to be more tolerant -- of serious dissent or criticism of the regime. The MOIS also is under the control of Iran’s conservative leader, Ayatollah Sayyid Ali Khamenei, and regardless of what the President says or wants, the supreme Leader will be the key decision maker.

The structure of the MOIS helps explain its role at home and abroad. The MOIS is broadly divided into 15 departments, which include general areas of responsibility seen in just about any modern intelligence agency such as counterintelligence, security, and training. Other departments are more tailored to the regime’s goals of preserving the Islamic Revolution (e.g., cultural, economic, and political affairs, legal/parliamentary affairs, etc.). Several staff offices fall under each department, ranging from those that are responsible for specific geographic areas such as the Middle East, Europe, and Africa, to others that deal with more specific issues such as the MEK, security investigations, and economic corruption.

There are limited data in unclassified sources on the degree of operational planning, coordination, and execution between the MOIS and various elements of the military, IRGC, and Qods Force. The MOIS, rather than elements of the IRGC, have historically played a critical role in threatening and sometime killing opponents of regime overseas. In the past, it took the lead role in engaging in espionage and intelligence gathering under diplomatic cover as well as civilian support for politically-oriented asymmetric warfare. It was the MOIS that conducted the operation that led to the capture of former Jundallah leader, Abdol Malek Rigi. But the growing role of the IRGC in overseas special operations is evident in what appears to be its oversight of the assassination attempt on the Saudi Ambassador in Washington.

MOIS and IRGC officers work out of separate offices in Iranian embassies, run separate networks in Lebanon and Syria, and run separate procurement and intelligence networks. There are also separate IRGC and MOIS fronts for importing military and nuclear technology dating back in some

cases to shell companies established during the Iran-Iraq War that are tied to elements in various ministries and sometimes academic institutions. At the same time, the MOIS and IRGC seem to have some overlapping functions, with both playing a role in managing repression and internal security in Iran, running their own detention facilities and prisons, intimidating, torturing, and even attacking Iranian citizens in Iran and overseas, and influencing Iran's civil, military, and security courts. While it lacks the overall resources and power of the IRGC, the MOIS remains a key instrument of state power at home and overseas that will undoubtedly have a role to play if Iran's nuclear facilities come under attack.

The US State Department 2012 report on human rights noted that,<sup>288</sup>

Several agencies shared responsibility for law enforcement and maintaining order, including the MOIS, Law Enforcement Forces under the Interior Ministry, and the IRGC, which reported to the supreme leader. The Basij, a volunteer paramilitary group with local organizations in cities and towns across the country, sometimes acted as an auxiliary law enforcement unit subordinate to the IRGC ground forces. Basij units often engaged in crackdowns on political opposition elements without formal guidance or supervision from superiors.

The security forces were not considered fully effective in combating crime, and corruption and impunity were problems. Regular and paramilitary security forces, such as the Basij, committed numerous human rights abuses, including acts of violence against protestors and public demonstrations. There was no transparent mechanism to investigate or punish security force abuses and no reports of government actions to discipline abusers.

...The constitution and penal code require a warrant or subpoena for an arrest and state that an arrested person must be informed of charges within 24 hours. In practice authorities often violated these procedures. Authorities held some detainees, at times incommunicado, for weeks or months without charge or trial, frequently denying them prompt contact with family or timely access to legal representation. In practice there was neither a time limit for detention nor judicial means to determine the legality of the detention. According to the law, the state is obligated to provide indigent defendants with attorneys only for certain types of crimes. The courts set prohibitively high bail, even for lesser crimes, and in many cases courts did not set bail. Authorities often compelled detainees and their families to submit property deeds to post bail. Persons released on bail did not always know how long their property would be retained or when their trials would be held, which effectively silenced them for fear of losing their families' property.

The intelligence arm of the IRGC reportedly conducted arrests during the year, sometimes without a warrant. In addition, security forces executed general warrants to arrest protesters or those perceived as opponents of the government. The use of these general warrants precluded the need for individual warrants.

Incommunicado arrest and detention were common. A February 23 UN Human Rights Council (UNHRC) study on secret detention practices in countering terrorism identified a pattern of incommunicado detention of political prisoners in secret or unofficial detention facilities. The report charged that political prisoners were often held in prolonged, solitary, and incommunicado confinement at ward 209 of Evin Prison

...Several organizations, including the Basij "Cyber Council"; the Cyber Police; and the Cyber Army, which was presumed to operate under the IRGC, were charged with monitoring, identifying, and countering alleged cyber threats against national security. The organization harassed persons who spoke out against human rights violations committed by the government or criticized the government, including by raising sensitive social issues. On March 7, Supreme Leader Khamenei issued an order to create a Supreme Council for Cyber Space, which will reportedly oversee the Telecommunications Research Center and collaborate with the Ministry of Communications to "protect" citizens from online dangers.

The Basij Cyber Council, the Cyber Police, the Cyber Army, and other government cyber organizations monitored Internet communications-- especially on social networking Web sites, such as Facebook, Twitter, and YouTube--and collected personally identifiable information in connection with peaceful expression of views. Authorities reportedly sometimes stopped arriving citizens at Tehran International Airport, asked them to log into their YouTube and Facebook accounts, and in some cases forced them to delete information

officials deemed controversial or threatening. Beginning on January 3, the government required cybercafés to install security cameras and to collect users' personal information.

According to RSF, the government blocked access to thousands of Web sites during the year, and in some cases ISPs redirected users to pro-regime news sites. The government periodically reduced Internet speed to discourage downloading material. Ministry of Information and Communications Technology regulations prohibited households and cybercafés from having high-speed Internet access. During the year and especially during periods prior to the anniversaries of the Islamic Revolution (February 11), the 2009 presidential election (June 12), and Students' Day (December 7), and in anticipation of the February 14 and 15 protests, authorities slowed Internet speed, further limited access to Facebook, Twitter, and Gmail, and blocked opposition Web sites, including that of former president Rafsanjani. On September 23, authorities stated that they had blocked access to Google and Gmail; access was reportedly restored a week later.

The government's cyber monitoring organizations upgraded and used sophisticated filtering technology to respond rapidly to newly published Internet content. NGOs reported that the government attempted to block Internet users' access to technology that would circumvent government content filters. According to Freedom House's *Freedom on the Net 2012: A Global Assessment of Internet and Digital Media*, content from opposition leaders' Web sites was deleted during the year.

The government prosecuted and punished several bloggers and Web masters for peaceful expression of dissenting views. According to AI, in the run-up to the March 2 legislative elections, authorities arrested at least 12 journalists and social media activists, while the BBC Persian service confirmed that the government was continuing to pressure its employees by taking family members of its London-based staff hostage. For example, on January 20, police arrested Mohammad Soleimani-Nia, the founder of social media Web site u24 and developer of several domestic NGO Web sites. He was reportedly imprisoned without charge, pressured to help develop the national Intranet, and released on May 22 on 40 million tomans (\$32,630) bail. RSF reported police rearrested Soleimani-Nia May 28 and released him August 13 on 500 million tomans (\$407,830) bail. On January 17, MOIS officials reportedly arrested Tabriz News Web site editor Peyman Pakmehr on national security charges, transferred him to Evin Prison, and released him on January 24 on 220 million tomans (\$179,450) bail.

There were no updates in the previous year's case of journalist and blogger Siamak Ghaderi, who reportedly remained imprisoned at year's end after being sentenced in January 2011 to four years in prison on charges of "propaganda against the regime" for participating in and reporting on public gatherings.

...Endowed religious charitable foundations, or "bonyads," accounted for a large portion of the country's economy that some experts estimated at approximately 30 percent. The tax-exempt organizations, defined under law as charities, were run by government insiders, including members of the military and the clergy. Members of the political opposition and international corruption watchdog organizations frequently accused bonyads of corruption. Bonyads received benefits from the government but were not required to have their budgets publicly approved.

All government officials, including cabinet ministers and members of the Guardian Council, Expediency Council, and Assembly of Experts, were required to submit annual financial statements to the state inspectorate. There was no information available regarding whether these officials obeyed the law or whether the financial statements were publicly accessible.

Numerous government agencies existed to fight corruption, including the Anticorruption Headquarters, Anticorruption Task Force, Committee to Fight Economic Corruption, and General Inspection Organization (GIO). Most of these organizations were government-run and public information regarding their specific mandates, their collaboration with civil society, and whether they were sufficiently resourced, was unavailable at year's end.

Some senior judicial officials acknowledged widespread corruption, while others denied it. On April 29, judiciary Chief Sadeq Larijani stated, "A hidden level of corruption exists, which in my opinion is much more important than the apparent level of corruption." On September 3, GIO head Mostafa Pourmohammadi stated, "I do not agree there is corruption in the government. I do not agree that corruption is rampant in the government."

The IRGC operated numerous front companies and subsidiaries that engaged in illicit trade and business activities in the telecommunications, construction, mining, and construction sectors. The IRGC's construction subsidiary, Khatam ol-Anbiya, reportedly benefited from corrupt ties to the petroleum sector. For example, on August 4, the deputy oil minister for planning and hydrocarbon resources announced, "According to a directive from the oil minister (Rostam Qassemi, the former chief of Khatam ol-Anbiya), the awarding of joint oil and gas field development plans will be done without the tendering process." On August 22, Iranian exile media outlet Radio Zamaneh reported that Khatam ol-Anbiya had been awarded a noncompetitive gas development deal. According to Radio Zamaneh, the managing director of the state-run Iranian Central Oil Fields Company stated that the contract had been awarded to Khatam ol-Anbiya without a tender following an order by the minister of oil to "skip the usual protocols" for signing oil and gas contracts.

Unfortunately, any assessment of the role that the MOIS/VEVAK and other intelligence elements play outside Iran in competing with the US and in operating in other countries requires access to sensitive intelligence data. It is clear that Iran has steadily built up cells and networks, and expanded the role of intelligence in its embassies, NGOs, Iranian owned "cover" businesses, Iranian overseas workers and groups, religious organizations and charities, and education efforts.

It is also clear that some of the supposed Iranian academic groups, journalists, analysts, religious figures, and delegations sent to other countries involved in track II diplomacy are active intelligence agents. This includes Iranians who act as if they are critics of the regime. This does not mean that the vast majority of Iranians in the opposition or who travel overseas are intelligence operatives, but it does mean that legitimate critics face serious problems with covert infiltration and intelligence operatives, that the regime routinely uses such covers, and Iranians who are too frank or critical can face punishment on their return to Iran. Similarly, Iranians who are citizens of other countries – particularly those with relatives still in Iran – face the threat of pressure or intimidation by such operatives.<sup>289</sup>

It is not clear how these are structured, how well they penetrate into the Arab Gulf and regional states, or how deeply they reach into the US, Europe, Asia, and other areas. One must also be extremely careful of references to the IRGC and Al Quds force; in at least some cases, the actual operative is almost certainly Iranian intelligence.

### **Other Asymmetric Forces**

The IRGC, Basij and Al Quds Force, and MOIS are only part of Iran's steadily increasing pool of forces – which include elements of its regular armed forces and other elements of its intelligence community and cells within its embassies. In fact, some Southern Gulf country security experts feel the ability of this combination of forces to fund, train, arm, and encourage extremist dissidents in their countries – and exploit Sunni and Shi'ite tensions – is the most serious single threat they face from Iran.

Iran's use of regional allies and proxies – including non-state actors like Hezbollah and state actors like Syria – has become a key aspect of Iran's asymmetric strategy, although these forces are largely independent and Iran has only limited leverage over their behavior. Iranian ties to such proxies and the US's response to them are discussed in detail later in region-specific volumes, but they merit discussion as a cornerstone of Iran's asymmetric military strategy in the Middle East.

While data on the specific levels of Iranian assistance are incomplete and often inaccurate, there is general agreement that aid levels remain significant. Washington continues to view Iran as the foremost state-sponsor of US-designed foreign terrorist organizations (FTO) and non-state proxy



organizations opposed to US regional interests.<sup>290</sup> In a September 13, 2011 hearing before the Committee on Homeland Security and Governmental Affairs, Matthew G. Olsen, the Director of the National Counterterrorism Center, added:<sup>291</sup>

“Iran is still the foremost state sponsor, and since 9/11 the regime has expanded its involvement with terrorist and insurgent groups—primarily in Iraq and Afghanistan—that target US and Israeli interests. Iran’s Islamic Revolutionary Guard Corps-Qods Force and Ministry of Intelligence and Security have been involved in the planning and execution of terrorist acts and the provision of lethal aid—such as weapons, money, and training—to these groups, particularly Lebanese Hezbollah.”

On January 31, 2012, the US Director of National Intelligence, James R. Clapper, stated that Iran is becoming increasingly bold in its support for regional proxies, namely the Syrian regime, Hezbollah, and Hamas, as well as various other burgeoning surrogates created in the wake of the Arab Spring.<sup>292</sup> More specifically, he stated that,

“In its efforts to spread its influence externally, Iran continues to support proxies and surrogates abroad, and it has sought to exploit the Arab Spring but has reaped limited benefits, thus far. Its biggest regional concern is Syria because regime change would be a major strategic loss for Tehran. In Iraq, it probably will continue efforts to strengthen ties to Baghdad and the Kurdistan Regional Government. In Afghanistan, Iran is attempting to undermine any strategic partnership between the United States and Afghanistan.”<sup>293</sup>

Director of National Intelligence Clapper’s 2013 statement in 2013 presented similar views,

“In its efforts to spread influence abroad and undermine the United States and our allies, Iran is trying to exploit the fighting and unrest in the Arab world. It supports surrogates, including Palestinian militants engaged in the recent conflict with Israel. To take advantage of the US withdrawals from Iraq and Afghanistan, it will continue efforts to strengthen political and economic ties with central and local governments, while providing select militants with lethal assistance. Iran’s efforts to secure regional hegemony, however, have achieved limited results, and the fall of the Assad regime in Syria would be a major strategic loss for Tehran.”<sup>294</sup>

In addition to Hezbollah in Lebanon, Iran has supplied and trained a number of non-state clients across the region, including Shi’ite militias in Iraq, Afghan insurgents, Hamas in Gaza, and possibly to the Houthi rebels in Yemen. These groups, while weak in comparison to larger conventional forces, provide Iran with the ability to undermine regional governments allied with the US and the West, and, as in the case of Iraq, to harass US forces in active warzones. Iranian proxies (Shi’ite militias and Hezbollah, respectively) continue to undermine the consolidation of potentially pro-Western governments in Iraq and Lebanon, and have allowed Iran to impact their local politics and foreign policy orientations. As such, Iran’s proxies are an effective asymmetric tool for Iran to undermine US regional influence while maximizing its own.

Iran’s asymmetric efforts have spread beyond the region. In late 2011 an Iranian plot to assassinate the Saudi Ambassador to the US, Adel al-Jubeir, came to light. Additionally, commander of Iran’s navy, Admiral Habibollah Sayyari, announced Iran’s intention to “establish a strong presence near US marine borders” by sending warships to the east coast of the US.<sup>295</sup> While the immediate implications and intent of these actions and statements are unclear, they are an unmistakable sign that Iran seeks to project its asymmetric reach beyond the Middle East, or at least appear to be capable of doing so. DNI Clapper’s testimony of January 31, 2012 reflects the growing concern amongst US officials that Iran is increasingly willing to escalate its asymmetric competition with the US by striking at US interests or personnel overseas:<sup>296</sup>

The 2011 plot to assassinate the Saudi Ambassador to the United States shows that some Iranian officials—probably including Supreme Leader Ali Khamenei—have changed their calculus and are now more willing

to conduct an attack in the United States in response to real or perceived US actions that threaten the regime. We are also concerned about Iranian plotting against US or allied interests overseas.

Iran's willingness to sponsor future attacks in the United States or against our interests abroad probably will be shaped by Tehran's evaluation of the costs it bears for the plot against the Ambassador as well as Iranian leaders' perceptions of US threats against the regime.

Iran perceives the delisting of the MEK as both part of America's efforts at regime change and response to Tehran's growing array of asymmetric forces and proxies. While the MEK has officially given up violence – and, more importantly, been disarmed and restrained inside Camp Ashraf since 2003 – Iranian public pronouncements<sup>297</sup> still identify the group as a terrorist organization that seeks the overthrow of the Islamic Republic. While the US did not delist the MEK with the intent of using it for proxy warfare, this perception will likely affect Iran's willingness to cut ties with other asymmetric groups and lose its proxy base in Syria.

### **Cyber Warfare and Netcentric/Electronic Warfare**

Cyberspace is gradually becoming the newest realm of competition between Iran and the United States and its allies. Due to the nature of cyberwar this issue is not geographically restricted, and allows both the Islamic Republic and the US to directly target the others' homeland to strike economic, political, and military objectives.

Cyberwar can be used as both part of a long-term information-gathering and sabotage campaign and as a direct attack that aims to shut down critical infrastructure. Stuxnet, the virus that targeted Iran's nuclear program and was allegedly developed by Israel and the US, represented the first public exposure of the cyber competition between the US and Iran.

Since then, American officials have accused Iran of orchestrating online attacks against the US and the GCC, most recently the disabling of 30,000 computers at the Saudi national oil company, and potential responsibility for attempted attacks on major US financial institutions and on Dutch web sites that could be used to identify Iranian dissidents.<sup>298</sup> CNN reported on November 5, 2012 that,<sup>299</sup>

Iran is believed to be behind a slew of massive attacks in September that took down a string of U.S. banks' websites. The country is also thought to have launched a devastating cyber time bomb on Saudi Oil Company Aramco in August and to have coordinated a similar attack on Qatar's RasGas, an Exxon Mobil (XOM, Fortune 500) subsidiary. ... The bank attacks were 10 to 20 times bigger than a typical denial of service attack, and doubled the previous record for traffic maliciously directed at a particular site, according to CrowdStrike, a security firm that investigated the attacks. The Aramco attack, set to go off on an Islamic holy night, unleashed a virus that destroyed about 30,000 corporate computers -- three-quarters of the company's PCs.

These attacks were seen as retaliation for alleged US cyber-sabotage of Iran's nuclear program, demonstrating that Iran is capable of defending itself in the face of further cyber-attacks.

Recently, reports have stated that Iran has become more proficient and has launched more ambitious cyber attacks on US targets. According to Mandiant Corp., a previously unknown hacking group believed to be based in Iran has started to attack US systems within the past 6 months. According to Richard Bejtlich, Mandiant's chief security officer, the Iranians are becoming increasingly active in cyberspace, "You're starting to see the Iranians get more active... We've got at least one case where we think it's Iran, and we think what they are doing is trying to gain some experience on a live network... We don't know if it's the government, we don't

know if they're patriotic hackers... We haven't seen these guys before, they are working their way through a network trying to figure out where can they go; who will find them; who will stop them."<sup>300</sup>

This reflects an earlier statement made in January 2013, from Gen. William Shelton, CENTCOM commander, "The Iranian situation is difficult to talk about... It's clear that the Natanz situation generated reaction by them. They are going to be a force to be reckoned with, with the potential capabilities that they will develop over the years and the potential threat that will represent to the United States."<sup>301</sup>

On October 12 Defense Secretary Panetta discussed US policy on cyber war in a speech, stating:

A cyber-attack perpetrated by nation states or violent extremist groups could be as destructive as the terrorist attack of 9/11. Such a destructive cyber terrorist attack could paralyze the nation.

Let me give you some examples of the kinds of attacks that we have already experienced.

In recent weeks, as many of you know, some large U.S. financial institutions were hit by so-called "distributed denial of service" attacks. These attacks delayed or disrupted services on customer websites. While this kind of tactic isn't new, the scale and speed was unprecedented.

But even more alarming is an attack that happened two months ago, when a sophisticated virus called "Shamoon" infected computers at the Saudi Arabian state oil company, ARAMCO.

Shamoon included a routine called a "wiper," coded to self-execute. This routine replaced crucial system files with an image of a burning U.S. flag. It also put additional "garbage" data that overwrote all the real data on the machine. The more than 30,000 computers it infected were rendered useless, and had to be replaced.

Then just days after this incident, there was a similar attack on Ras Gas of Qatar — a major energy company in the region. All told, the Shamoon virus was probably the most destructive attack that the private sector has seen to date.

Imagine the impact an attack like this would have on your company.

These attacks mark a significant escalation of the cyber threat. And they have renewed concerns about still more destructive scenarios that could unfold. For example, we know that foreign cyber actors are probing America's critical infrastructure networks.

They are targeting the computer control systems that operate chemical, electricity and water plants, and those that guide transportation throughout the country.

We know of specific instances where intruders have successfully gained access to these control systems. We also know they are seeking to create advanced tools to attack these systems and cause panic, destruction, and even the loss of life.

Let me explain how this could unfold.

An aggressor nation or extremist group could gain control of critical switches and derail passenger trains, or trains loaded with lethal chemicals. They could contaminate the water supply in major cities, or shut down the power grid across large parts of the country.

The most destructive scenarios involve cyber actors launching several attacks on our critical infrastructure at once, in combination with a physical attack on our country. Attackers could also seek to disable or degrade critical military systems and communications networks.

The collective result of these kinds of attacks could be "cyber Pearl Harbor": an attack that would cause physical destruction and loss of life, paralyze and shock the nation, and create a profound new sense of vulnerability...

We are recruiting, training and retaining the best and brightest in order to stay ahead of other nations. It's no secret that Russia and China have advanced cyber capabilities. Iran has also undertaken a concerted effort to use cyberspace to its advantage...

In addition to defending the department's networks, we also help deter attacks. Our cyber adversaries will be far less likely to hit us if they know we will be able to link them to the attack, or that their effort will fail against our strong defenses. The department has made significant advances in solving a problem that makes deterring cyber adversaries more complex: the difficulty of identifying the origins of an attack.

Over the last two years, the department has made significant investments in forensics to address this problem of attribution, and we are seeing returns on those investments. Potential aggressors should be aware that the United States has the capacity to locate them and hold them accountable for actions that harm America or its interests.

But we won't succeed in preventing a cyber-attack through improved defenses alone. If we detect an imminent threat of attack that will cause significant physical destruction or kill American citizens, we need to have the option to take action to defend the nation when directed by the president.

For these kinds of scenarios, the department has developed the capability to conduct effective operations to counter threats to our national interests in cyberspace.

Let me be clear that we will only do so to defend our nation, our interests, or our allies.

And we will only do so in a manner consistent with the policy principles and legal frameworks that the department follows for other domains, including the law of armed conflict.<sup>302</sup>

Iran recognizes that it faces an uphill struggle in using cyberspace effectively. The head of Iran's domestic cyberwar agency, Brigadier General Gholam Reza Jalali, "called for Iran's smart confrontation of enemy's cyber threat such that 'threats determine the direction of our movement... I think that utilizing high-tech is like playing in enemy's court, because it is developed based on the capabilities of the enemy.'" <sup>303</sup>

Jalali said the US and Israel own a key share of infrastructural and high-tech companies for this very same purpose. "Thus, Iran must design a new model for cyber defense... Such a civil defense model should not be a conventional and symmetric one, given the aforementioned facts." IRGC leaders in particular have realized that net-centric warfare represents a potentially level playing field between the two states if Iran can close the expertise gap and reduce its vulnerability to cyber-attack; as offensive cyber operations achieve greater disruptive power, Iran gains a second-strike capability in the face of US kinetic operations. <sup>304</sup>

In recent years, Iran has become more open in discussing its cyber-attack and defense capabilities:

- "The cyber maneuvers bylaw has been prepared and will be circulated among the relevant organizations in a bid to improve and materialize the civil defense objectives in the field of cyber," Jalali said, addressing a seminar of civil defense director-generals of different Iranian provinces. He noted the Civil Defense Organization also plans to set regulations in the near future for the country's vital infrastructures in a bid to achieve complete safety in the cyber field. "Vital infrastructures fall within the first layer of the information technology and if they stop functioning, it will cause danger at national security level" -Head of Iran's Civil Defense Organization Brigadier General Gholam Reza Jalali he added. July 06, 2013<sup>305</sup>
- "[Iran has] the fourth biggest cyber power among the world's cyber armies." - Deputy of the Supreme Leader's representative at the IRGC Brigadier General Mohammad Hossein Sepehr, February 2, 2013.<sup>306</sup>
- "Constant watch on enemy's threat against the Islamic Republic shows that cyber threats against Iran's national security infrastructure have found a special place and share in enemies' hostile strategy and given the country's current conditions it is necessary to consider (developing) an indigenous cyber defense model as our important priority." - Deputy Chief of Staff of the Iranian Armed Forces for Basij and Defense Culture Brigadier General Massoud Jazzayeri, October 29, 2012. <sup>307</sup>

- “These threats are posed every day and the intelligence apparatus counters and obviates enemy's actions in the cyber space every day. The Islamic Republic is so powerful in the cyber space that (even) leaders of the arrogant powers admit and acknowledge our country's successes as well.” - Iranian Intelligence Minister Heidar Moslehi, October 8, 2013.<sup>308</sup>
- “The second type (of viruses) has been developed by governments and are specifically sent via governments, and their mission is spying on infrastructures and the like. All of them have so far been confronted and our preparedness to do so is growing on a daily basis.” - Iranian Minister of Communication and Information Technology Reza Taqipour. October 8, 2013.<sup>309</sup>
- “Today our cyber forces have easily accessed the enemies' highly classified information, and (our) cyberwar codes have been promoted in a desirable manner...Today, the enemy is ready to pay billions of dollars to access even the most insignificant pieces of information of us...The information (cyber) security is like a master key for the IRGC and it should receive the top priority.” - Commander of the Islamic Revolution Guard Corps Navy Rear Admiral Ali Fadavi, September 30, 2012.<sup>310</sup>

Iran's full capacities for cyberwarfare are unknown at this time, as is the exact way it organizes its cyberwarfare activity. Hossein Bostani has published one hypothesized command structure, with the High Council of Cyberspace coordinating all activities and each branch of the security apparatus controlling their own cyber corps. In this model, the regular military runs the Cyber Defense Command (which restricts itself mostly to defense), the IRGC coordinates with Iran's Cyber Army (which was involved with recent hacking attacks), the Basij runs propaganda campaigns and low-level hacking, and the police maintain a cyber-policing division. If this is correct, it implies a level of control only at the highest level, allowing each branch to tailor cyber operations to fit its kinetic profile.<sup>311</sup>

Iran does, however, usually deny that it uses cyber-attacks. For example, Mehdi Akhavan Beh-Abadi, director of Iran's National Center of Cyberspace, claimed in late October 2012 that U.S. accusations that the Iranian regime was behind the attacks on part of the US financial system were nothing more than exercises in deception: “One of the main aims of the United States is to make itself look like the victim.”<sup>312</sup>

Iranian officials' protestations to the contrary, there are indications that Iran's motives in cyberspace are less benign. The *New York Times* has reported that, “Iran announced in 2011 that it had begun its own military cyber unit, and Brig. Gen. Gholamreza Jalali, the head of Iran's Passive Defense Organization, said the Iranian military was prepared “to fight our enemies” in “cyberspace and Internet warfare.”<sup>313</sup> Little is known about how that group is organized, or where it has bought or developed its expertise. It is also clear that Iran's actions are both offensive and defensive. One source has stated in testimony to Congress that,<sup>314</sup>

The past year has seen a quickening of the regime's long-running campaign against “Western influence” within the Islamic Republic. These efforts include:

- The construction of a new, “halal” national internet. This “second Internet,” which will effectively sever Iran's connection to the World-Wide Web by routing web users to pre-approved, Iranian-origin sites, is currently expected to come online by late summer 2012.
- Installation of a sophisticated Chinese-origin surveillance system for monitoring phone, mobile and Internet communications.
- The passage of new, restrictive governmental “guidelines” forcing Internet cafes to record the personal information of customers—including vital data such as names national identification numbers, and phone numbers—as well the installation of closed-circuit cameras to keep video logs of all customers accessing the World-Wide Web.

- Movement toward the formation of a new government agency to monitor cyberspace. Once operational, this “Supreme Council of Cyberspace,” which will be headed by top officials from both Iran’s intelligence apparatus and the Revolutionary Guards, will be tasked with “constant and comprehensive monitoring over the domestic and international cyberspace,” and be able to issue sweeping decrees concerning the Internet that would have the full strength of law.

Fox News has reported that, “To beef up its cyber capabilities both at home and abroad, Iran has been investing in its Cyber Police Unit, organized by the country’s Islamic Revolutionary Guard Corps between 2009 and 2011 mainly to shadow Iranian social media activity inside the country. . . . A task force of 250,000 cyber police currently monitors the Internet, specific sites, blogs and individuals suspected of using circumvention tools.

Roughly \$76 million of the total \$11.5 billion allocated to the Islamic Revolution Guard Corps has been spent on cyber warfare, a battle ‘against old enemies using new strategies,’ the government once said about combating cyber dissidents in a hardline newspaper. . . . The government announced plans last year to disconnect Iran from the rest of the world and run a parallel ‘Islamically permissible’ or ‘halal’ internal network that would automatically censor material and block popular global sites and search engines, such as Facebook, Google and Wikipedia.”<sup>315</sup>

Israeli sources have stated that,<sup>316</sup>

Iran is working to develop and implement a strategy to operate in cyberspace. The approach by Supreme Leader Khamenei to opportunities and risks inherent in cyberspace, reflected in his March 2012 announcement on the establishment of the Supreme Cyber Council, shows how central the issue is in Iran. Defensively, Iran is working to realize two main goals: first, to create a “technological envelope” that will protect critical infrastructures and sensitive information against cyberspace attacks such as the Stuxnet virus, which damaged the Iranian uranium enrichment program, and second, to stop and foil cyberspace activity by opposition elements and opponents to the regime, for whom cyberspace is a key platform for communicating, distributing information, and organizing anti-regime activities. The Iranian program to create a separate, independent communications network is particularly important in this context.

Offensively, the cyberspace strategy is part of the doctrine of asymmetrical warfare, a central principle in the Iranian concept of the use of force. Cyberspace warfare, like other classical asymmetrical tactics such as terrorism and guerilla warfare, is viewed by Iran as an effective tool to inflict serious damage on an enemy with military and technological superiority. In a case of escalation between Iran and the West, Iran will likely aim to launch a cyber-attack against critical infrastructures in the United States and its allies, including energy infrastructures, financial institutions, transportation systems, and others.

In order to realize the goals of its strategy, Iran has allocated about \$1 billion to develop and acquire technology and recruit and train experts. The country has an extensive network of educational and academic research institutions dealing with information technology, computer engineering, electronic engineering, and math. In addition, the government operates its own institute – the Iran Telecommunications Research Center, the research and professional branch of the Information and Communications Ministry. The institute trains and operates advanced research teams in various fields, including information security. Another government body is the Technology Cooperation Officer, which belongs to the president’s bureau, and initiates information technology research projects. This body has been identified by the European Union and others in the West as involved in the Iranian nuclear program.

The Iranian cyberspace system comprises a large number of cyber organizations, formally related to various establishment institutions and involved in numerous fields. One central organization with a primarily defensive orientation is the Cyber Defense Command, operating under Iran’s Passive Defensive Organization, affiliated with the General Staff of the Armed Forces. Alongside military personnel, this cyberspace organization includes representatives of government ministries, such as the ministries of communications, defense, intelligence, and industry, and its main goal is to develop a defensive doctrine against cyberspace threats. Another cyberspace body of a defensive nature is the MAHER Information Security Center, operating under the aegis of the communications and information technology ministry. The

center is in charge of operating rapid response teams in case of emergencies and cyber-attacks. Iran also has a Committee for Identifying Unauthorized Sites and FETA, the police cyberspace unit, which in addition to dealing with internet crime also monitors and controls Iranian internet usage, with emphasis on internet cafés throughout the country that allow relatively anonymous web surfing.

... The picture is less clear regarding Iran's offensive cyberspace capabilities. Clearly the capabilities of the Revolutionary Guards make Iran one of the most advanced nations in the field of cyberspace warfare, with capabilities, inter alia, to install malicious code in counterfeit computer software, develop capabilities to block computer communications networks, develop viruses and tools for penetrating computers to gather intelligence, and develop tools with delayed action mechanisms or mechanisms connected to control servers. There is also evidence of links between the Revolutionary Guards and hacker groups in Iran and abroad that operate against the enemies of the regime at home and around the world. The use of outsourcing allows the Revolutionary Guards and Iran to maintain distance and deniability about Iran's involvement in cyberspace warfare and cybercrime. A prominent hacker group linked to the Revolutionary Guards is the Ashiyane Digital Security Team, whose members are motivated by an ideology supporting the Iranian regime.

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As was noted earlier, Iran has made efforts to delink its internet from the World Wide Web, likely in an effort to preserve cyber-security as well as control information flows into the Islamic Republic. This "National Internet" is officially to provide security on the web, protection against cyberwar, and defeat the US in a "soft war". While a domestically controlled internet would support all these objectives, creating one is an immense technological and policy challenge, and Iran is unlikely to produce its own exclusive network in the near future. Even without Iran controlling its own network, the issue of cyberwar presents a myriad of challenges for the US and Gulf States as well as Iran, among them the primacy of offense and the immense vulnerability of most civilian targets to cyber-attacks.

While Secretary Panetta's remarks sought to clarify US policy on cyberwar, much is still unclear. It is unknown what retaliation would be considered acceptable for a cyber-attack, and how much damage such a strike would have to do to engender kinetic warfare. Similarly, while Iran is believed to have a cadre of trained hackers,<sup>317</sup> Tehran has not publicly stated any Iranian doctrine on cyber operations.

While Iran regularly boasts about its ability to defend itself against such attacks,<sup>318</sup> given the success (albeit limited) of the Stuxnet and Flame viruses, and the possibility that other such attacks have so far been successful and hence not reported in the press, it is unlikely the Islamic Republic has perfected its cyber defenses.

The use of cyber-attack during the Velayat-91 drills – incorporating disruptions of communications and attempts to steal information – suggests that Iran is preparing to integrate netcentric warfare into offensive and defensive kinetic operations. The success of the cyber aspect of the drill has received marked publicity by Iranian officials; according to PressTV, “senior Iranian commander Rear Admiral Amir Rastegari said, ‘During one of the practices of the second day of the drills, aggressive forces launched a cyber-attack against the computer network of defensive forces in order to infiltrate the network and hack information or spread viruses.’ The spokesman for the Velayat 91 naval drill also stated that the Navy’s cyber defense forces successfully detected the threat and blocked it.”<sup>319</sup> Although these operations were ostensibly defensive, a realistic drill trains both the attacking and reacting sides and improves Iran’s offensive ability to target US forces in combat conditions.

Cyberspace is likely to become one of the major flashpoints in US-Iranian competition, as the inherently-asymmetric nature of the realm – anonymity, deniability, and capacity of weaker states to inflict disproportionate damage – makes it appealing for Iranian investment. Given the lack of established doctrine by both sides, risk-taking behavior by either side has a high escalation potential, potentially causing severe economic dislocation or leading to kinetic clashes.

It is also important to note that there is tendency to assume that such attacks have to come through the Internet and from outside crackers and hackers. They can also take the form of physical attacks and sabotage of key cyber, communications, and network facilities, and be used in combination with cyberwarfare. Saudi and Bahraini experts are particularly concerned with the risk of sabotage.



**Figure 29: Known or Suspected Cyber Attacks**

<b>Name</b>	<b>Target</b>	<b>Date</b>	<b>Presumed Initiator</b>
Stuxnet	Caused particular pieces of equipment, specifically Iranian-style centrifuges, to overrun and break.	2009 (discovered 2010)	US and/or Israel
Duku	Information gathering on security flaws, obtains personal data, and possibly some data deletion.	2010? (discovered 2011)	US and/or Israel Thought to be Stuxnet-derived
Flame	Intelligence gathering from audio, screenshots, keyboard strokes, documents, and accessing nearby Bluetooth devices.	2010 (discovered 2012)	US and/or Israel
Shamoon – Aramco and Ras Gas Attacks?	Gather and erase information on hard drives; eventually shuts infected PCs down. Probably used in Aramco and Ras Gas attacks.	2012	Iran
Mahdi	Intelligence gathering from audio, screenshots, keyboard strokes, and documents.	2012	Iran?
Culture Ministry	Unknown virus. Iran claimed in December 2012 to have prevented an attack on electric and industrial facilities in Hormozgan.	2012	US and/or GCC

## **Drone, UAV, UCAV, and Unmanned Operations**

Competition in drone warfare has also escalated, as the US has viewed unmanned aerial vehicles as an easy way to conduct overflights of Iran, while Iran sees them as both an intelligence and potential military threat and an opportunity to access advanced American technology. There is no evidence that the US has as yet used drones in offensive military strikes against the Iranian state. UAVs have, however, allowed the US to regularly gather intelligence on Iran's conventional forces, ballistic systems, and nuclear weapons program, providing closer and wider-spectrum coverage than is possible from satellites and longer loiter times than manned aircraft can achieve.

Iranian claims to the contrary, Iran has likely not yet produced UAVs capable of sustained intelligence gathering or air strikes in the face of any air-defense systems. Iran probably does have some limited drone technology, as demonstrated by the recent penetration of Israeli air space by a UAV, believed to be an Iranian model launched by Hezbollah.<sup>320</sup>

Iran has reportedly built UAVs capable of carrying explosives – in effect, slower-moving but better controlled and potentially stealthier cruise missiles – that were used by Hezbollah in 2006. Even if these drones are operational, their all-weather capability<sup>321</sup> is likely to be limited; a system that can only fly in daylight under good conditions provides limited value, even in the restricted strategic space of the Gulf.

Iran has issued many statements about its UAV capability,

- “We are producing 20 types of UAVs inside the country, which are classified in the three categories of long, short and mid-range and altitude... We hope to soon unveil new strategic drones which can fly up to 30,000 feet in altitude and 24 hours of nonstop flight.” - Deputy Defense Minister for Industrial and Research Affairs Mohammad Eslami, April 6, 2013.<sup>322</sup>
- “These military progresses by the Armed Forces of the Islamic Republic of Iran reinforce the country's capability of defending Iran's boundaries... Offensive drones with the missile-launching capability have great deterrent effects on enemies' threats and aggressions.” - Parliament's National Security and Foreign Policy Commission Evaz Heidarpour, February 11, 2013.<sup>323</sup>
- “We are among the leading countries in the development of drones tasked with reconnaissance, surveillance and of course other military missions and I state very powerfully that the drone, ScanEagle, is lagging behind our national drone technologies... ScanEagle had been in our possession before and we have even copied it in production.” - Defense Minister Brigadier General Ahmad Vahidi, December 19, 2013.<sup>324</sup>
- “Iran enjoys a very high speed in (acquiring and developing) knowledge and we are now at a good stage with regard to defense tools, equipments, and particularly know how... As regards aircraft and drones, all of our forces and all organizations of the Iranian Armed Forces have been equipped with this weapon and in different classes and types of defense... Our ground, naval and air divisions are using this weapon (drone) and we think that the higher Iran's defensive power and capability in this ground grows, the more it will contribute to our deterrence.” - Deputy Chief of Staff of the Iranian Armed Forces for Basij and Defense Culture Brigadier General Massoud Jazzayeri, December 10, 2012.<sup>325</sup>
- “As regards UAV capability, our country stands at international levels, but we still want to expand it,” Managing-Director of the Iranian Aviation Industries Organization (IAIO) Manouchehr Manteqi, December 10, 2012.<sup>326</sup>
- “Although the West and those who consider themselves as superpowers do not believe, the mass-production of Iranian drones will be started in the not far future, and then those who imagine to be

superpowers should bow to the Islamic Republic of Iran... The West should recognize that we are serious in our will and determination to expand and advance our technologies, the defense technologies in particular, and Iran's announcements are not diplomatic posture.” – MP in the Iranian Parliament, Nasrallah Pejmanfar, December 8, 2012.<sup>327</sup>

- “Definitely, the drone which recently flew over the occupied lands (Israel) and astonished the world was not the product of Iran's latest technology... The Islamic Republic of Iran is now in possession of Unmanned Aerial Vehicles (UAVs) with much more advanced technology than that of the drone which was flown in the sky of the occupied territories by Hezbollah forces.” - Defense Minister Brigadier General Ahmad Vahidi, October, 28, 2012.<sup>328</sup>

In the past few years, the Iranian media and military has shown pictures of “stealth” and “attack” UAVs, sometimes with rockets or bombs as cargo. However, at least in pictures of the Karrar<sup>329</sup> and the Hameseh<sup>330</sup>, do not show precision-guided munitions, rather these UAVs look to be equipped with unguided rockets and gravity bombs.

Other more recent drones, the Shahid-129 and H-110 Sarir, do seem to be more technically advanced. The Shahid-129 is similar to the Israeli-made Hermes 450 and Watchkeeper WK450 and according to Iranian sources can fly for 24-hours and “capable of hitting targets at a distance of 1,700-2,000 kilometers.”<sup>331</sup> But Iranian pictures of the drone do not show it equipped with weapons. The H-110 Sarir, first shown in April 2013, appears to be the most advanced Iranian drone yet unveiled. It is reportedly able to “Sarir is capable of carrying cameras and air-to-air missiles,” and has been shown equipped with 2 MANPADs attached to pylons.<sup>332</sup>

Regardless of how far Iran has gotten, its construction of drones benefits its conventional rearmament program in two ways. It fills a substantial gap in Iran’s intelligence-gathering network caused by the aging manned aircraft fleet, which was low on surveillance craft to begin with, and lack of satellites. In the event of a conventional conflict in the Gulf, ground war in Iran or neighboring states, or missile strikes around the region, UAVs could play a major role in reconnaissance, coordinating strikes, and conducting post-strike analysis.

Drones also provide Iran with an additional retaliatory capability and direct response to American and Israeli intelligence-gathering missions. Iran scored a major success in December 2011 in the crash – or, as Iran claims, hacking and downing – of an American RQ-170 Sentinel UAV.<sup>333</sup> Drone missions to Israel, even those that are shot down, demonstrate that Iran is fully capable of comparable missions against its competitors. Although Iranian drones are nowhere near as capable as their American and Israeli counterparts, such a mission – which reportedly came close to Israel’s own nuclear facility<sup>334</sup> – sought to equalize the playing field in this particular aspect of competition.

Iran does, however, face superior existing US capabilities and a far larger US development base for creating new capabilities. The expansion of drone operations at the American base in Djibouti signifies an escalation of UAV competition and American determination to retain its advantage.<sup>335</sup> The base lies well within range of Iran, and also provides coverage for a wide range of areas in which America fears Iranian proxies may be active: Yemen, Somalia, and the Levant. It provides strategic depth from which the US can operate surveillance drones well after it exits Afghanistan, with the UAVs speed and endurance allowing them to cover unstable regions in north and east Africa as well as the Gulf. The investment also represents a doubling-down on UAV technology,

as the US estimates that such weapons systems will be valuable in the Gulf and evolving trouble spots on the periphery in the near future.

The recent attack on a US MQ-1 by two Su-25s highlights the growing tension in the region. It is still unclear whether Iran sought to destroy the UAV or drive it farther away from Iranian airspace. The incident represents the first direct exchange of fire between Iranian and US forces since 1988, as Tehran seeks to demonstrate its defensive capabilities and confrontational attitude toward US “interference.” In response to the incident, Brigadier General Massoud Jazayeri stated “The defenders of the Islamic Republic of Iran give decisive response to any aerial, ground or sea aggression. If any kind of alien flying objects wants to enter our country’s airspace, our armed forces will confront it.”

According to Brigadier General Amir Ali Hajizadeh:

“The American drone was flying around Kharg Island, and our understanding is that this drone was also collecting military intelligence from Kharg Island and to observe economic intelligence [regarding] oil issues and tanker traffic when Iranian fighters responded,” he added.

Hajizadeh said Iran had already warned the US about drone flights but “at this stage we are giving them a more serious warning”.

“The Islamic Republic has some red lines that the Americans need to understand and observe. If there is a repeat [of the drone flight] they should expect a harsher response,” he added.<sup>336</sup>

The incident further highlights the risks inherent in UAVs operating in a contested air space. An attack like this one against a manned aircraft would have represented a serious escalation, with better defined costs and consequences. While targeting a piloted plane in international waters – potentially killing the crew – would have had serious diplomatic repercussions and allowed the US to escalate if it so chose, the gray zone of drone warfare allowed Iran to pressure the US at minimal cost.<sup>337</sup>

The rules of engagement in any future incident are unknown. Some American UAVs can be equipped with Stinger air-to-air missiles, and while Iran may view the cost of such engagements as low right now, future attacks could lead drones to fire in self-defense. Such an incident would spark a significant escalation in US-Iranian tensions, and stems from both the inherent weaknesses of UAVs and the danger of viewing any target or platform as a low-cost target for demonstrating resolve.

### ***“Closing the Gulf:” Iran’s Real World Military Options for Asymmetric Warfare***

Iran’s recent threats to “close the Gulf” provide another tangible illustration of Iran’s asymmetric warfare capabilities – although it must be stressed that “close the Gulf” does not mean a real world focus on the Strait, but rather a wide range of different options for intimidation and conflict along all of Iran’s Gulf coast and outside it in the Gulf of Oman and the Arabian Sea. In fact, Iran places far more emphasis on activities like mine warfare outside the immediate area of the Strait of Hormuz than within it.

While Iran’s asymmetric assets do not provide it with the ability to win a major direct conflict with US forces, the coordinated, simultaneous use of Iran’s submarines, anti-ship cruise missiles (ASCMs), fast-attack craft, and swarm tactics in a first strike could inflict costly losses on US

naval forces and commercial shipping in the Strait. These assets and tactics, in combination with Iran's large arsenal of naval mines, likely render Iran capable of closing the Gulf for a short while. Moreover, Iran can retrofit many of the country's civilian watercraft with rockets, heavy machine guns, and the ability to lay mines. Its IRGCN craft, however, represent Iran's most modern and potent resources for striking against US forces in the Gulf and rendering the Strait impassable.

Iran does exercise such scenarios and has since the Iran-Iraq War and the mid-1980s. In late December 2011 and early January 2012, Iran carried out military drills in the Gulf to demonstrate its stated capability to close the Strait of Hormuz, made threatening statements about the presence of the US' 5<sup>th</sup> Fleet in the region, and the Iranian parliament is considering a bill that would prohibit the presence of foreign warships in the Gulf without the permission of the Iranian navy.<sup>338339</sup>

Iranian official military statements have both admonished the US and made indirect claims of responsibility for the area:

- "The Armed Forces have their own plans for every subject, but the decision to close the Strait of Hormuz lie on the Commander-in-Chief (Ayatollah Khamenei), who also receives consultations from the Supreme National Security Council (SNSC)," - Major General Hassan Firouzabadi, Chief of Staff of Iran's Armed Forces, August 6, 2012.<sup>340</sup>
- "Compared with the Strait of Hormuz, the volume of oil transfer through the UAE pipeline is very meager and the pipeline's capacity is not even one fifteenth of the capacity of oil shipment through the Strait of Hormuz," Nasser Sudani, Member of Parliament's Energy Commission, July 18, 2012.
- "The security of the Persian Gulf and the Strait of Hormuz is among the main priorities of the Islamic Republic of Iran and this security should be durable so that all countries of the region can protect and defend their interests and those of the region. Any factor impairing this security will threaten the national interests of the regional states." Ramin Mehman-Parast, Foreign Ministry Spokesman, July 18, 2012.<sup>341</sup>
- "Should the enemies desire to use the method and spirit of threats, we will naturally also threaten them. The (military) exercise by the armed forces of the Islamic Republic of Iran's Islamic Revolution, in fact, expresses the will to act against various types of threats that are targeting our national security." - Hossein Salami, Revolutionary Guards Deputy, February 7, 2012.<sup>342</sup>
- "[T]he recent statements made by the US and the West about the Strait of Hormuz shows that they are frightened by the awe of the (Islamic) Revolution, otherwise the Iranian nation considers the Strait of Hormuz as the strait of peace. However, the Iranian nation is determined to cut the hand of those who seek adventurism in the Persian Gulf, the Sea of Oman and the Strait of Hormuz." - Ali Larijani, Speaker of Iranian Parliament, February 1, 2012.<sup>343</sup>
- "Tehran will not remain indifferent to US mischief in the region if Washington tries to cause problems for regional countries. The Strait of Hormuz is a region of peace and Iran has protected its peace for centuries and will continue to do so in order to maintain calm in it,"-Ali Larijani, Speaker of Iranian Parliament, January 31, 2012.<sup>344</sup>
- "The US has given a role to Saudi Arabia, Qatar and Turkey to direct the regional developments in a way that they move towards these countries' interests in line with the US policies and opposite to Iran's policies. Owing to the fact that Iran's Islamic Revolution serves as a role model for the regional and world nations in their fight against the tyranny of their rulers and arrogant powers, the US and its allies are attempting to prevent Tehran's further political influence in the region." - Major General Yahya Rahim Safavi, Senior Military Aide to the Supreme Leader.<sup>345</sup>

- “The United States did not dare to direct its aircraft carrier through the Strait of Hormuz alone; this is why the carrier was “escorted” by military vessels of other nations. If the Strait is closed, the aircraft carriers will become the war booty of Iran.” - Javad Karimi Qodousi, parliamentary National Security Committee member.<sup>346</sup>
- “There is no decision to block and close the Strait of Hormuz unless Iran is threatened seriously and somebody wants to tighten the noose. All the options are on the table.” - Mohammad Khazaei, Iranian Ambassador to the United Nations.<sup>347</sup>
- “Our capability to provide security in the region, specially the Strait of Hormuz during sensitive times, will not experience any change due to the western warships’ trafficking in the region.” -Gholam Reza Karami, Iranian lawmaker and Chairman of the Parliamentary Defense Committee, January 16, 2012.<sup>348</sup>
- “Today the Islamic Republic of Iran has full domination over the region and controls all movements within it.” - Navy Rear Admiral Ali Fadavi, Commander of Iran’s Islamic Revolution Guards Corps (IRGC), January 6, 2012.<sup>349</sup>
- “The Zolfaqar vessel is considered as a new model of the vessels of the same class which is capable of conducting operations in different marine conditions thanks to its sea-to-sea missiles and proper speed. The sea-to-sea cruise missile with high destructive capability and targeting power has immensely increased the vessel’s power.” -Brigadier General Ahmad Vahidi , Iranian Defense Minister, January 2, 2012.<sup>350</sup>
- “Iran has total control over the strategic waterway. Closing the Strait of Hormuz is very easy for Iranian naval forces.” -Rear Admiral Habibollah Sayyari, Iran’s naval commander, December 28, 2011.<sup>351</sup>
- “If they impose sanctions on Iran’s oil exports, then even one drop of oil cannot flow from the Strait of Hormuz.” - Mohammad-Reza Rahimi, Iran’s first vice president, December 27, 2011.<sup>352</sup>
- “Closure of the Strait of Hormuz is not on the Islamic Republic of Iran’s agenda (at present), but if threats against Iran come to trample upon the rights of our nation while others use the strait for exporting their oil, then Iran will be entitled to the right to close the Strait of Hormuz. The international conventions reserve such rights for the Islamic Republic of Iran as well. For the time being, the Islamic Republic of Iran has not decided to close the strait, but this (closing the strait) depends on the conditions of the region.” - Mohammad Taqi Rahbar, Iranian lawmaker, December 19, 2011.<sup>353</sup>
- “According to the international laws, including Paragraph 4 of Article 14 of the Geneva Convention, in case Iranian oil is sanctioned, we will not allow even a single barrel of oil to pass through to reach the hostile countries.” -Isa Jafari, Senior Iranian lawmaker, December 18, 2011.<sup>354</sup>

### **The Potential Strategic, Energy, and Global Economic Impacts of the Iranian Threat**

Iran began to issue its threats to “close the Gulf” in late 2011, at a time that illustrates just how the mix of US and Iranian competition interweaves between diplomatic, economic, and military dimensions. Iran backed its threats with a series of major naval exercises inside and outside the Gulf. It acted at a time when its nuclear program was moving steadily closer to the point where Iran would have a “threshold” capability to make nuclear weapons, simultaneously moving its uranium enrichment facilities into a deep mountain shelter near Fordow to protect it from threatened Israeli and US air strikes.

It was also a time when the US and EU were imposing far stronger sanctions that threatened to cripple Iran’s economy by targeting its financial and petroleum sectors. Israel was suspected of

assassinating Iranian nuclear scientists, and possibly sabotaging Iranian nuclear and missile sites. Iran was suspected of plotting to kill the Saudi Ambassador to the US and of bombings aimed at Israeli diplomats. A power struggle was going on over the future of Syria between an Iranian-backed Assad and a Sunni Free Syrian Army with the support of the Arab world and Turkey. The US and Iran were competing for influence over Iraq. Additionally, a new round of public debates was taking place over whether Israel might strike Iran to prevent it from acquiring nuclear weapons.

***Strategic Dependence on the Overall Flow of Gulf Exports, Not on the Security of the Strait of Hormuz***

These conditions illustrate the growing complexity and seriousness of the military and security aspects of US and Iranian competition, and the role that asymmetric forces can have even if they are only used as threats. Iran's irregular capabilities illustrate its growing willingness to threaten or attack US, Arab Gulf, and European interests – the most important of which is the flow of Gulf petroleum exports to the global economy.

It is important to stress that Iran can threaten this traffic at many points inside the Gulf, throughout the Strait of Hormuz, and in the Gulf of Oman. The Strait, however, does force all shipping activity to move through a very narrow target area both in the Straits and on either side, particularly in the areas where the shipping channels pass by Iranian-held islands to the west of the Strait. The Strait is deep and wide enough to handle the world's largest crude oil tankers, with about two-thirds of oil shipments carried by tankers in excess of 150,000 deadweight tons. At its narrowest point, however, the Strait is 21 miles wide, but the width of the shipping lane in either direction is only two miles, separated by a two-mile buffer zone.

The Energy Information Agency report on global energy choke points notes that,<sup>355</sup>

Closure of the Strait of Hormuz would require the use of longer alternate routes at increased transportation costs. Alternate routes include the 745 mile long Petroline, also known as the East- West Pipeline, across Saudi Arabia from Abqaiq to the Red Sea. The East-West Pipeline has a nameplate capacity of about 5 million bbl/d. The Abqaiq-Yanbu natural gas liquids pipeline, which runs parallel to the Petroline to the Red Sea, has a 290,000-bbl/d capacity. Additional oil could also be pumped north via the Iraq-Turkey pipeline to the port of Ceyhan on the Mediterranean Sea, but volumes have been limited by the closure of the Strategic pipeline linking north and south Iraq.

It also is not the security of the Strait alone that is of such vital strategic importance to the West, but rather the secure flow of all petroleum exports. Iran can attack or impede this flow from anywhere within the Gulf and can terrify captains and shipping companies with only a few attacks. Moreover, there is little near to mid-term possibility that the world's dependence on the Strait will be reduced in any meaningful sense. Iraq has sought to negotiate an agreement with Turkey to extend the operation of the 1.6 million barrels per day pipeline, as well as to upgrade its capacity by 1 million barrels per day.

***Near and Mid-Term Strategic Dependence***

There is no question that global and US strategic dependence on the security and stability of Gulf energy exports will continue in the near and mid-term. While the volume of Gulf exports varies according to demand and the state of the global economy, the Energy Information Agency of the US Department of Energy reported in 2012 that a daily oil flow of almost 17 million barrels moved through the Strait of Hormuz in 2011, up from between 15.5-16.0 million barrels a day in 2009-

2010. On average, 14 crude oil tankers per day passed through the Strait in 2011, with a corresponding amount of empty tankers entering to pick up new cargos. More than 85 percent of these crude oil exports went to Asian markets, with Japan, India, South Korea, and China representing the largest destinations.<sup>356</sup>

The Gulf states can export oil gas through additional routes, but they do not materially change global dependence on the stable and secure flow of petroleum and gas through the Strait, and each such route creates other vulnerabilities of its own:

- Saudi Arabia can export another 4.5 million barrels a day of crude and 2 million barrels a day of natural gas liquids and products through the Yanbu' terminal on the Red Sea, but this pipeline is already in use and does not represent surplus capacity.
- Iraq has one major crude oil export pipeline, the Kirkuk-Ceyhan (Iraq-Turkey) pipeline, which transports oil from the north of Iraq to the Turkish Mediterranean port of Ceyhan. This pipeline has a capacity of around 300,000 barrels a day, but has been subject to repeated disruptions this decade, limiting exports from the northern fields. Another line is opening up from the Kurdish areas in northern Iraq to Ceyhan, but the KRG now has a maximum production capability of 255,000 barrels per day, and the new pipeline – which opened in January 2014 – will have a maximum capacity of 400,000 barrels per day.
- The United Arab Emirates has completed the Abu Dhabi Crude Oil Pipeline -- with a capacity of 1.5 million barrels per day that crosses the emirate of Abu Dhabi and ends at the port of Fujairah just south of the Strait.<sup>357</sup> The port, however, is still potentially vulnerable to Iran

The effect of these increases in pipeline capacity will be largely offset by future increases in the overall volume of Gulf exports. Both the US EIA and International Energy Agency estimate there will be a steady increase in Gulf production capacity through 2040.

### *The Uncertainties Affecting Longer-Term Global Strategic Dependence on the Gulf*

Global strategic dependence on exports from the Gulf region will increase, not decrease with time. The US Energy Information Agency estimates there will be a steady increase in Gulf production capacity through 2040. As **Figure 30** shows, the Reference Case in the EIA report on the International Energy Outlook for 2013 estimates that the combined production of Saudi Arabia, Iran, and Iraq will rise from 17.9 million barrels per day in 2011 to 25.1 million barrels per day in 2040.<sup>358</sup>

The EIA also estimates that the Gulf share of all world liquids production – including all alternatives to conventional petroleum – will rise from 27% of global production capacity in 2015 to 31% in 2040. The Gulf's share of global petroleum production will rise from 27% of global production capacity to 32% in 2040.<sup>359</sup> It will do so in spite of major increases in production in other areas and alternative fuels.

The Executive Summary of the IEA World Energy Outlook for 2013 projects that that global energy demand for Gulf oil exports will rise steadily in spite of increases in oil production in other areas and in unconventional liquids. Moreover, it projects that the world will become even more dependent on the Gulf after 2020,<sup>360</sup>

The centre of gravity of energy demand is switching decisively to the emerging economies, particularly China, India and the Middle East, which drive global energy use one-third higher. In the New Policies Scenario, the central scenario of *WEO-2013*, China dominates the picture within Asia, before India takes over from 2020 as the principal engine of growth. Southeast Asia likewise emerges as an expanding demand centre (a development covered in detail in the *WEO* Special Report: *Southeast Asia Energy Outlook*,



published in October 2013). China is about to become the largest oil-importing country and India becomes the largest importer of coal by the early 2020s. The United States moves steadily towards meeting all of its energy needs from domestic resources by 2035. Together, these changes represent a re-orientation of energy trade from the Atlantic basin to the Asia-Pacific region. High oil prices, persistent differences in gas and electricity prices between regions and rising energy import bills in many countries focus attention on the relationship between energy and the broader economy. The links between energy and development are illustrated clearly in Africa, where, despite a wealth of resources, energy use per capita is less than one-third of the global average in 2035. Africa today is home to nearly half of the 1.3 billion people in the world without access to electricity and one-quarter of the 2.6 billion people relying on the traditional use of biomass for cooking. Globally, fossil fuels continue to meet a dominant share of global energy demand, with implications for the links between energy, the environment and climate change.

The capacity of technologies to unlock new types of resources, such as light tight oil (LTO) and ultra-deep-water fields, and to improve recovery rates in existing fields is pushing up estimates of the amount of oil that remains to be produced. But this does not mean that the world is on the cusp of a new era of oil abundance. An oil price that rises steadily to \$128 per barrel (in year-2012 dollars) in 2035 supports the development of these new resources, though no country replicates the level of success with LTO that is making the United States the largest global oil producer. The rise of unconventional oil (including LTO) and natural gas liquids meets the growing gap between global oil demand, which rises by 14 mb/d to reach 101 mb/d in 2035, and production of conventional crude oil, which falls back slightly to 65 mb/d.

The Middle East, the only large source of low-cost oil, remains at the centre of the longer-term oil outlook. The role of OPEC countries in quenching the world's thirst for oil is reduced temporarily over the next ten years by rising output from the United States, from oil sands in Canada, from deep-water production in Brazil and from natural gas liquids from all over the world. But, by the mid-2020s, non-OPEC production starts to fall back and countries in the Middle East provide most of the increase in global supply. Overall, national oil companies and their host governments control some 80% of the world's proven-plus-probable oil reserves.

The new geography of demand and supply means a re-ordering of global oil trade flows towards Asian markets, with implications for co-operative efforts to ensure oil security. The net North American requirement for crude imports all but disappears by 2035 and the region becomes a larger exporter of oil products. Asia becomes the unrivalled centre of global oil trade as the region draws in – via a limited number of strategic transport routes – a rising share of the available crude oil. Deliveries to Asia come not only from the Middle East (where total crude exports start to fall short of Asian import requirements) but also from Russia, the Caspian, Africa, Latin America and Canada. New export-oriented refinery capacity in the Middle East raises the possibility that oil products, rather than crude, take a larger share of global trade, but much of this new capacity eventually serves to cater to increasing demand from within the region itself.

An earlier IEA analysis in the 2012 edition of the *World Energy Outlook* provided more detail on Gulf energy production, but its broader conclusions track closely with its 2013 estimates.<sup>361</sup>

Growth in oil consumption in emerging economies, particularly for transport in China, India and the Middle East, more than outweighs reduced demand in the OECD, pushing oil use steadily higher in the New Policies Scenario. Oil demand reaches 99.7 mb/d in 2035, up from 87.4 mb/d in 2011, and the average IEA crude oil import price rises to \$125/barrel (in year-2011 dollars) in 2035 (over \$215/barrel in nominal terms). The transport sector already accounts for over half of global oil consumption, and this share increases as the number of passenger cars doubles to 1.7 billion and demand for road freight rises quickly.

The latter is responsible for almost 40% of the increase in global oil demand: oil use for trucks – predominantly diesel – increases much faster than that for passenger vehicles, in part because fuel-economy standards for trucks are much less widely adopted. Non-OPEC oil output steps up over the current decade, but supply after 2020 depends increasingly on OPEC. A surge in unconventional supplies, mainly from light tight oil in the United States and oil sands in Canada, natural gas liquids, and a jump in deepwater production in Brazil, push non-OPEC production up after 2015 to a plateau above 53 mb/d, from under 49 mb/d in 2011. This is maintained until the mid-2020s, before falling back to 50 mb/d in 2035.

Output from OPEC countries rises, particularly after 2020, bringing the OPEC share in global production from its current 42% up towards 50% by 2035. The net increase in global oil production is driven entirely by

unconventional oil, including a contribution from light tight oil that exceeds 4 mb/d for much of the 2020s, and by natural gas liquids. Of the \$15 trillion in upstream oil and gas investment that is required over the period to 2035, almost 30% is in North America.

...Iraq makes the largest contribution by far to global oil supply growth. Iraq's ambition to expand output after decades of conflict and instability is not limited by the size of its resources or by the costs of producing them, but will require coordinated progress all along the energy supply chain, clarity on how Iraq plans to derive long-term value from its hydrocarbon wealth and successful consolidation of a domestic consensus on oil policy. In our projections, oil output in Iraq exceeds 6 mb/d in 2020 and rises to more than 8 mb/d in 2035. Iraq becomes a key supplier to fast-growing Asian markets, mainly China, and the second-largest global exporter by the 2030s, overtaking Russia. Without this supply growth from Iraq, oil markets would be set for difficult times, characterized by prices that are almost \$15/barrel higher than the level in the New Policies Scenario by 2035.

***Figure 30: Growing Strategic Importance of Gulf Petroleum as a Percent of Total World Petroleum and Other Liquids Production***

Region/country	History (estimates)		Projections						Average annual percent change, 2010-2040
	2010	2011	2015	2020	2025	2030	2035	2040	
<b>OPEC*</b>	<b>34.9</b>	<b>35.1</b>	<b>36.1</b>	<b>38.4</b>	<b>40.0</b>	<b>42.5</b>	<b>45.7</b>	<b>48.9</b>	<b>1.1</b>
Middle East	23.8	25.4	24.5	26.7	28.2	30.4	33.1	35.8	1.4
North Africa	3.8	2.4	3.5	3.3	3.3	3.5	3.8	4.0	0.2
West Africa	4.4	4.3	5.1	5.3	5.5	5.8	5.8	5.9	0.9
South America	2.9	3.0	3.0	3.1	3.1	3.0	3.1	3.3	0.4
<b>Non-OPEC</b>	<b>51.8</b>	<b>51.7</b>	<b>55.8</b>	<b>58.2</b>	<b>60.3</b>	<b>61.9</b>	<b>63.7</b>	<b>66.0</b>	<b>0.8</b>
<b>OECD</b>	<b>21.4</b>	<b>21.4</b>	<b>23.9</b>	<b>23.9</b>	<b>23.4</b>	<b>23.0</b>	<b>23.8</b>	<b>24.8</b>	<b>0.5</b>
OECD Americas	16.0	16.4	19.5	19.8	19.6	19.3	19.7	20.0	0.8
United States	9.4	9.8	12.2	12.8	12.1	11.5	11.6	11.7	0.8
Canada	3.6	3.7	4.7	5.1	5.6	5.9	6.1	6.2	1.8
Mexico/Chile	3.0	3.0	2.6	2.0	1.8	2.0	2.0	2.1	-1.2
OECD Europe	4.6	4.2	3.7	3.4	3.1	2.9	3.1	3.6	-0.8
North Sea	3.6	3.3	2.8	2.6	2.3	2.1	2.0	2.2	-1.6
Other	1.0	0.9	0.9	0.8	0.8	0.8	1.1	1.4	1.3
OECD Asia	0.8	0.8	0.7	0.7	0.7	0.8	1.0	1.1	0.9
Australia and New Zealand	0.7	0.6	0.6	0.5	0.5	0.6	0.8	0.9	1.1
Other	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
<b>Non-OECD</b>	<b>30.4</b>	<b>30.4</b>	<b>32.0</b>	<b>34.2</b>	<b>36.8</b>	<b>38.9</b>	<b>39.9</b>	<b>41.3</b>	<b>1.0</b>
<b>Non-OECD Europe and Eurasia</b>	<b>13.4</b>	<b>13.5</b>	<b>14.2</b>	<b>15.0</b>	<b>15.9</b>	<b>16.4</b>	<b>17.1</b>	<b>17.4</b>	<b>0.9</b>
Russia	10.1	10.2	10.5	10.8	11.0	11.5	12.0	11.6	0.5
Caspian Region	2.9	3.0	3.4	3.9	4.7	4.8	4.9	5.5	2.1
Kazakhstan	1.6	1.6	2.1	2.5	3.3	3.4	3.6	3.9	3.0
Other	1.3	1.3	1.3	1.5	1.4	1.4	1.4	1.6	0.6
Other	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	-0.6
<b>Non-OECD Asia</b>	<b>8.2</b>	<b>8.1</b>	<b>8.1</b>	<b>8.1</b>	<b>8.4</b>	<b>8.7</b>	<b>8.6</b>	<b>8.7</b>	<b>0.2</b>
China	4.3	4.3	4.4	4.6	5.0	5.5	5.6	5.6	0.8
India	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.1	0.6
Other	2.9	2.8	2.8	2.6	2.4	2.1	1.9	2.0	-1.2
<b>Middle East (Non-OPEC)</b>	<b>1.6</b>	<b>1.4</b>	<b>1.3</b>	<b>1.2</b>	<b>1.2</b>	<b>1.1</b>	<b>1.0</b>	<b>1.0</b>	<b>-1.6</b>
<b>Africa (Non-OPEC)</b>	<b>2.7</b>	<b>2.7</b>	<b>2.7</b>	<b>3.1</b>	<b>3.2</b>	<b>3.2</b>	<b>3.1</b>	<b>3.5</b>	<b>0.9</b>
<b>Central and South America (Non-OPEC)</b>	<b>4.6</b>	<b>4.7</b>	<b>5.7</b>	<b>6.8</b>	<b>8.2</b>	<b>9.5</b>	<b>10.1</b>	<b>10.7</b>	<b>2.9</b>
Brazil	2.5	2.5	3.3	4.4	5.6	7.0	7.5	7.7	3.8
Other	2.1	2.2	2.3	2.4	2.6	2.6	2.6	3.0	1.3
<b>Total world</b>	<b>86.6</b>	<b>86.8</b>	<b>92.0</b>	<b>96.6</b>	<b>100.2</b>	<b>104.4</b>	<b>109.4</b>	<b>115.0</b>	<b>0.9</b>
OPEC share of world production	40%	40%	39%	40%	40%	41%	42%	43%	
Persian Gulf share of world production	27%	29%	27%	28%	28%	29%	30%	31%	

\*OPEC=Organization of the Petroleum Exporting Countries (OPEC-13).

Note: Petroleum liquids include crude oil and lease condensates, natural gas plant liquids, bitumen, extra-heavy oil, and refinery gains. Other liquids include gas-to-liquids, coal-to-liquids, kerogen, and biofuels.

Sources: History: U.S. Energy Information Administration (EIA). Projections: EIA, Generate World Oil Balance Model (2013) application.

Source: US Energy Information Administration, *International Energy Outlook 2013*, Table G1 EIA/DOE, July 2013, <http://www.eia.gov/forecasts/ieo/pdf/0484%282013%29.pdf>, p. 247.

### *US Strategic Dependence on Gulf Energy Exports*

The realities that shape future US strategic dependence on the stable flow of oil from the Gulf are sometimes disguised by US politics that claim the US can eliminate its strategic dependence on energy imports. The US government is far from making this an official position. Changes in technology and estimates of reserves are reducing estimates of US direct dependence on petroleum imports. Nevertheless, the US Department of Energy still projected in 2014 that the US would remain dependent on major energy imports through 2040 – the furthest period for which its Energy Information Agency makes such estimates

**Figure 31** does show that the EIA projections in the *Annual Energy Outlook 2014 (AEO2014)* reflect a projected drop in Reference Case estimate of US dependence from 37% in 2040 in the 2013 projections to 32% in 2040 in the 2104 projections. The EIA report also, however, shows a slow rise in US import dependence after 2020. The EIA summarized its projections as follows,<sup>362</sup>

The Reference case focuses on the factors that shape U.S. energy markets through 2040, under the assumption that current laws and regulations remain generally unchanged throughout the projection period. The early release provides a basis for the examination and discussion of energy market trends and serves as a starting point for analysis of potential changes in U.S. energy policies, rules, or regulations or possible technology breakthroughs. Readers are encouraged to review the full range of cases that will be presented when the complete AEO2014 is released in 2014, exploring key uncertainties in the Reference case.

Major highlights of the AEO2014 Reference case include:

- Growing domestic production of natural gas and crude oil continues to reshape the U.S. energy economy, with crude oil production approaching the historical high achieved in 1970 of 9.6 million barrels per day...Ongoing improvements in advanced technologies for crude oil and natural gas production continue to lift domestic supply and reshape the U.S. energy economy. Domestic production of crude oil (including lease condensate) increases sharply in the AEO2014 Reference case, with annual growth averaging 0.8 million barrels per day (MMbbl/d) through 2016, when it totals 9.5 MMbbl/d
- ...While domestic crude oil production is expected to level off and then slowly decline after 2020 in the Reference case, natural gas production grows steadily, with a 56% increase between 2012 and 2040, when production reaches 37.6 trillion cubic feet (Tcf). The full AEO2014 will include cases that represent alternative oil and natural gas resource and technology assumptions.
- Low natural gas prices boost natural gas-intensive industries Industrial shipments grow at a 3.0% annual rate over the first 10 years of the projection and then slow to 1.6% annual growth for the rest of the projection. Bulk chemicals and metals-based durables account for much of the increased growth in industrial shipments in AEO2014. Industrial shipments of bulk chemicals, which benefit from an increased supply of natural gas liquids, grow by 3.4% per year from 2012 to 2025 in AEO2014, as compared with 1.9% in the Annual Energy Outlook 2013 (AEO2013) Reference case. The projection assumes growing competition from abroad that flattens output growth in energy-intensive industries after 2030.
- The higher level of industrial shipments leads to more natural gas consumption (including lease and plant fuel) in the U.S. industrial sector, increasing from 8.7 quadrillion British thermal units (Btu) in 2012 to 10.6 quadrillion Btu in 2025 in AEO2014, compared to 9.8 quadrillion Btu in 2025 in AEO2013

There are major uncertainties in any projections that go so far into the future – and time frames far beyond those used in USD strategic planning, A report from the International Energy Agency in 2012 did, however, provide a different picture. The IEA estimated that that the US could be a net

exporter of natural gas by 2020 and effectively self-sufficient in energy in 2035. The Executive Summary to this IEA report stated that,<sup>363</sup>

The recent rebound in US oil and gas production, driven by upstream technologies that are unlocking light tight oil and shale gas resources, is spurring economic activity – with less expensive gas and electricity prices giving industry a competitive edge – and steadily changing the role of North America in global energy trade. By around 2020, the United States is projected to become the largest global oil producer (overtaking Saudi Arabia until the mid-2020s) and starts to see the impact of new fuel-efficiency measures in transport. The result is a continued fall in US oil imports, to the extent that North America becomes a net oil exporter around 2030. This accelerates the switch in direction of international oil trade towards Asia, putting a focus on the security of the strategic routes that bring Middle East oil to Asian markets.

These IEA estimates were based on a more favorable view of improvements in drilling technique that could allow the US to access first to shale gas and later to harder-to-reach oil deposits, along with gradual increases in efficiency and renewable energy generation than the EIA has since taken into account in 2013 and 2014.<sup>364</sup> Highly regarded experts like Ed Morse also make a strong analytical case, however, that the EIA and US government may be lagging behind in estimating the degree of future US and North American energy independence. The data involved are very uncertain and rapidly evolving.<sup>365</sup>

Even if the IEA predictions hold, however, this will not alter the critical strategic impact of any Iranian threat to Gulf energy exports to the US. The US does not live in an economic bubble. It pays world prices for oil and it is dependent on the global economy for its own stability and growth. Like wheat and other global commodities, the strategic importance of oil exports is not dependent on whether petroleum goes from one nation to another at any given time, but rather it is dependent on the supply of the overall global market and balance of supply and demand. US strategic interests are not shaped simply by US direct energy import needs, but rather how the secure and stable flow of world energy exports affects the world and US economies. Both the EIA and IEA agree that the world economy will become steadily more dependent on Gulf energy exports through 2035-2040. As has been noted earlier, it must be stressed that the US is becoming steadily more dependent on the overall health of the global economy, and is an indirect importer of oil through its imports of Asia and other manufactured goods – imports that are not calculated by either EIA or IEA.

US strategic interests also are not dependent on where the United States gets its imports from, or US direct dependence on energy imports, but US dependence on the stability and health of the global economy, or whether America remains a major future direct importer of oil. US experts understand that even in the most optimistic case, the US economy will still need to pay world energy prices in a crisis, and that the United States is increasing its dependence on trade and the health of the global economy by an average of 2 to 3% a year.<sup>366</sup> If a crisis occurs in the Gulf it will pay the increased world market price for all its oil – including domestic production and oil imports from other areas – as well as the other related increase in energy costs that come out of a war or crisis in the Gulf, and any reduction or expected reduction in global supply will increase such costs.

Moreover, the US economy is steadily becoming even more dependent on the global economy – and on imports of manufactured goods that require the secure flow of Gulf energy exports to Europe and Asia.<sup>367</sup> To put this in perspective, the CIA *World Factbook* estimated in January 2014 that the United States had a total GDP of \$16.2 trillion in 2012. It imported \$2.3 trillion worth of goods, only 8.2% of which was oil. Other industrial goods accounted for 24.7%, capital goods accounted for 30.4%, and finished consumer goods accounted for 31.8% – a total of over 87%.<sup>368</sup>

This indirect dependence on the stable flow of energy exports to other countries already is greater than US direct dependence on petroleum imports, and goods from Asia and European states dependent on Gulf oil and gas imports accounted for well over 48%. In real world terms, even total US energy independence in terms of direct imports would be strategically irrelevant compared to US dependence on indirect imports.

As a result, US policymakers face the same challenge as Asian, European, and other policymakers: the global economy is critically dependent on the stable flow of Gulf oil exports. The politics of calling for “energy independence” have little – if any – impact on either US threat perceptions or plans for the defense of the Gulf. In practice, US national security planners accept the fact that the Gulf is and will remain is the location of a strategically vital share of the world’s petroleum resources.

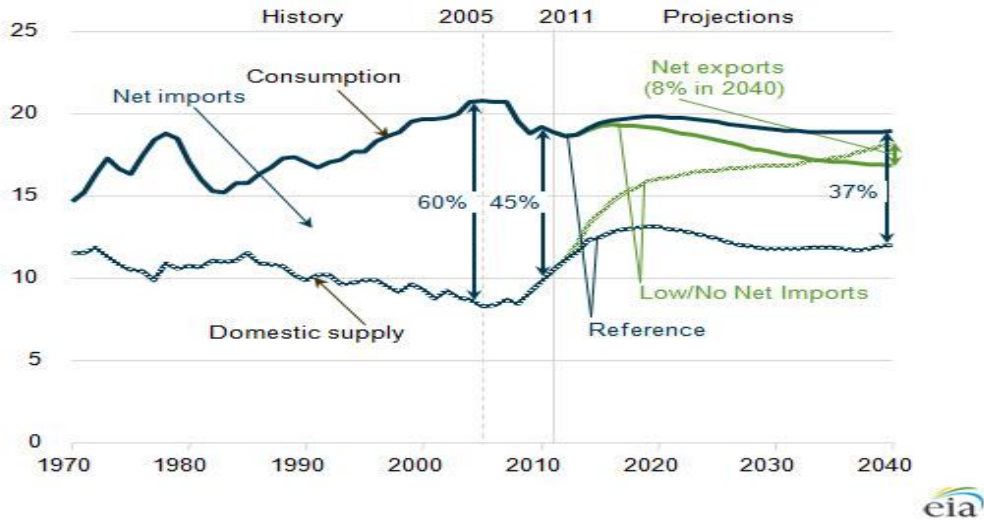
Where the decline in US import dependence could have a major strategic impact is a future where US domestic policies and pressures continue to put acute pressure on the US federal budget and on US defense spending. In such a contingency, the US politics of “energy independence” could become more important than US strategic considerations. The current US budget crisis has already led to cuts in US military spending – although the Congress sharply reduced the scale of such cuts in its vote on the FY2014 budget. If these budget cuts became more drastic in the future, they could lead to significant cuts in total US military forces, including those that the US projects into the Pacific and the Middle East.

Much of the US response to the drop in US import dependence may depend on how the military balance in the Gulf and Middle East evolves and US perceptions of the risks in the region, the scale of US competition or cooperation with China, and the extent to which the US search for strategic partnerships in the Gulf and East Asia affect the cost of US power projection. Regardless of the global strategic importance of the energy flows through the IOR, the US may come to feel that the cost-benefits of playing the role of global policeman half way around the world to help secure Asian strategic interests are not favorable enough to sustain the current US strategy and commitments to the IOR.

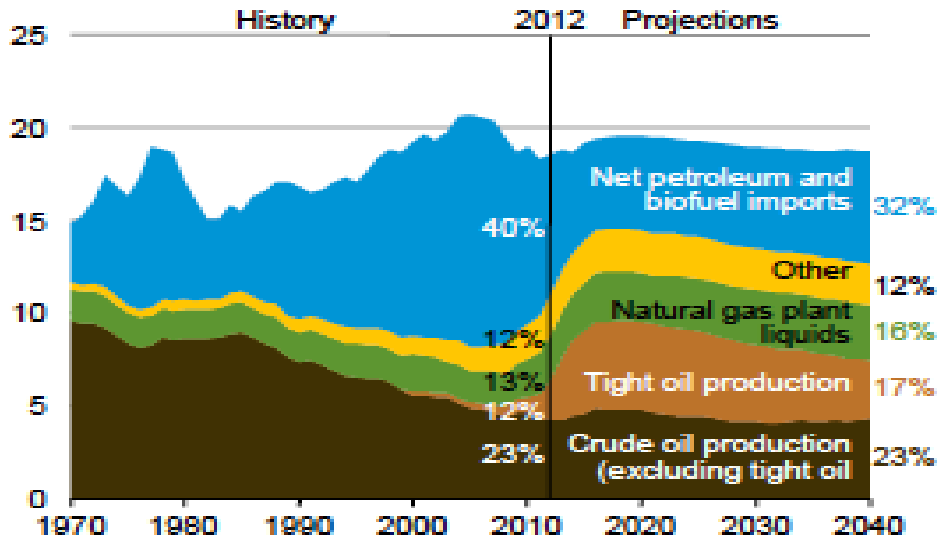
**Figure 31: Estimated US Dependence on Petroleum Imports: 2010-2040**

FY2013 International Energy Outlook Estimate

**Figure 1. Net import share of U.S. liquids supply in two cases, 1970-2040 (million barrels per day)**



**FY2014 Annual Energy Outlook 2014 Early Release Estimate: U.S. petroleum and other liquid fuels supply by source, 1970-2040 (million barrels per day) <sup>369</sup>**



Sources: US Energy Information Administration, *Annual Energy Outlook 2013 Early Release Overview*, May 2, 2013, [http://www.eia.gov/forecasts/aeo/chapter\\_executive\\_summary.cfm#tightoil](http://www.eia.gov/forecasts/aeo/chapter_executive_summary.cfm#tightoil) and US Energy Information Administration, *Annual Energy Outlook 2014 Early Release Overview*, December 7, 2013, <http://www.eia.gov/forecasts/aeo/er/pdf/0383er%282014%29.pdf>.

## Iran's Military Assets for Such a Mission

As the previous analysis has shown, the Iranian military establishment and the IRGC is steadily acquiring the kind of military assets that can halt or obstruct Gulf shipping and threaten the US's superior conventional naval forces in the region. Although US conventional power would defeat Iranian forces in a protracted conflict, Iran's arsenal of smart munitions, anti-ship cruise missiles (ASCMs), submarines, mines, and fast-attack missile craft potentially could inflict significant losses on US and allied forces and disrupt Gulf shipping in a surprise attack.

There is no one scenario Iran would have to use in "closing the Gulf." Iran might actually try to use all of its assets to close the Gulf, but this would almost force the US, its Southern Gulf allies, Britain, and France into an all-out attack on Iran's conventional and asymmetric forces, and quite probably trigger a much broader set of attacks on Iran's nuclear, missile, and military production facilities. Such a war would also cut Iran off from exporting its own petroleum and from critical imports – including food, refined petroleum products, and manufactured goods. Iran has far smaller economic reserves than the Southern Gulf states and is already vulnerable to being shut out of the world banking system.

In contrast, Iran has a host of different tools it could use to threaten traffic through the Gulf, harass shipping, carry sporadic "anonymous" or semi-deniable attacks, or conduct a careful campaign of attrition designed to keep up constant pressure but remain below the threshold that would provoke or justify a massive US-led campaign.

If Iran stayed away from the Strait, it could also carry out such a campaign without threatening its own ability to export and import, and could seek the "weakest link" in the Southern Gulf to attack. Iran could play both a "short" and a "long" game – peaking its actions when it suits its interest, reducing or halting them if they become too provocative, and constantly changing its approach and tactics. This would also force the US and Southern Gulf states into a constant state of military alert and tension, greatly raising the cost to them in countering Iran.

## Iran's Submarines and Submersibles

Iran's most modern assets for challenging US conventional power in the Gulf and closing the Strait include submarines, surface craft, mines, anti-ship missiles, and a number of other systems, with the former potentially the most potent.<sup>370371372</sup>

### *Submarines*<sup>373374</sup>

Iran has attempted to offset some of the weaknesses of its major surface forces by obtaining three Type 877EKM Kilo-class submarines. As has been touched upon earlier, Iran has problems in operating its Kilos, particularly in realistic submerged missions. Overall training is also poor.

Nevertheless, the Kilo is a relatively modern and quiet submarine that first became operational in 1980. The Iranian Kilos are Type 877EKM export versions that are about 10 meters longer than the original Kilos and are equipped with advanced command and control systems. They have maximum surface speed of 10 knots, a maximum submerged speed of about 17 knots, a minimum submerged operating depth of about 45 meters, an operational diving depth of 240 meters, and a maximum diving depth of 300 meters. The submarine also has a surface cruise range of 3,000-6,000 nautical miles and a submerged cruise range of 400 nautical miles – depending on speed and combat conditions.



Each Type 877EKM has a teardrop hull coated with anechoic tiles to reduce noise. It displaces approximately 3,076 tons when submerged, and 2,325 tons when surfaced. It is approximately 72.6 meters long, 9.9 meters in beam, has a draught of 6.6 meters, and is powered by three 1,895 horsepower generator sets, one 5,900-shaft horsepower electric motor, and one six-bladed propeller. It has a complement of 52 men and an endurance of 45 days. Its maximum submerged speed is 17 knots, and its maximum surface speed is 10 knots.

Each has six 530-mm torpedo tubes, including two wire-guided torpedo tubes. Only one torpedo can be wire guided at a time. The Kilo can carry a mix of 18 homing and wire-guided torpedoes or 24 mines. Russian torpedoes are available with ranges of 15-19 kilometers, speeds of 29-40 knots, and warheads with 100-, 205-, and 305-kilogram weights. Their guidance systems include active sonar homing, passive homing, wire guidance, and active homing. Some reports indicate that Iran bought over 1,000 modern Soviet mines along with the Kilos and that the mines were equipped with modern magnetic, acoustic, and pressure sensors.

The Kilos also have a remote anti-aircraft launcher with one preloaded missile in the sail, and Soviet versions have six SA-M-5 (Igla/SA-16) surface-to-air missiles stored inside. However, Russia supplied Iran only with the SA-14 (Strela). It can be modernized to carry Chinese YJ-1 or Russian Novator Alfa surface-to-surface missiles.

Iran could use its submarines to strike against US naval forces, attack commercial vessels, and lay mines. Iran's ability to use its *Kilo*-class submarines to deliver mines and fire long-range wake-homing torpedoes give it a potential capability to strike in ways that make it difficult to detect or attack the submarine. Mines can be laid covertly in critical areas before a conflict, and the mines can be set to active and deactivate at predetermined intervals in ways that make mining difficult to detect and sweep. Long-range homing torpedoes can be used against tanker-sized targets at ranges in excess of 10 kilometers and to attack slow-moving combat ships that are not on alert and/or lack sonars and countermeasures.

- 877EKM "*Kilo*"
  - Number in Service: 3
  - Speed: 17 kts
  - Max Depth: 300 m
  - Armament: 6 x 533 mm torpedo tubes; 18 torpedoes, or 24 mines

Iran does face significant operational problems in using its submarines in local waters, although not in most of the Gulf of Oman, the Arabian Sea, and the Indian Ocean. Many areas of the Gulf do not favor submarine operations. The Gulf is about 241,000 square kilometers in area and stretches 990 kilometers from the Shatt al-Arab to the Strait of Hormuz. It is about 340 kilometers wide at its maximum width and about 225 kilometers wide for most of its length. While heat patterns disturb surface sonars, they also disturb submarine sonars, and the advantage lies slightly with more sophisticated and more numerous surface ships and maritime patrol craft.

The water is deeper on the Iranian side, but the maximum depth of the Gulf – located about 30 kilometers south of Qeys Island – is still only 88 meters. This means that no point in the Gulf is deeper than the length of an SSN-688 nuclear submarine. The keel to tower height of such a submarine alone is 16 meters. Even smaller coastal submarines have maneuver and bottom suction problems, and cannot hide in thermoclines or take advantage of diving for concealment or self-

protection. This may explain why Iran is planning to relocate its Kilo submarines from Bandar Abbas inside the Gulf, to Chah Bahar in the Gulf of Oman, and is deepening the naval facility at Chah Bahar.<sup>375</sup>

The Strait of Hormuz at the entrance to the Gulf is about 180 kilometers long, but has a minimum width of 39 kilometers. In many areas, and only the two deep-water channels are suitable for major surface ship or submarine operations. Furthermore, a limited flow of fresh water and high evaporation makes the Gulf extremely salty. This creates complex underwater currents in the main channels at the Strait of Hormuz and complicates both submarine operations and submarine detection.

There are some areas in the Strait and the Gulf with considerable noise, but not of a type that masks submarine noise from sophisticated ASW detection systems of the kind operated by the US and the UK. Additionally, large parts of the Gulf – including much of the southern Gulf on a line from Al Jubail across the tip of Qatar to about half way up the UAE – are less than 20 meters deep. The minimum operating depth of the Kilo is 45 meters, and the limited depth of the area around the Straits can make submarine operations difficult. It is unclear if Iran's recent ASW and submarine exercises have shown it that its midget submarines might have greater striking power in the Gulf and encounter fewer difficulties than its Kilo submarines. If so, Iran might place a greater emphasis on its Ghadir submarines, at least in the initial stages of any conflict.

Submarines are easier to operate in the Gulf of Oman, which is noisy enough to make ASW operations difficult, but such deployments would expose the Kilos to operations by US and British nuclear attack submarines (SSN). It is unlikely that Iran's Kilos could survive for any length of time if hunted by a US or British Navy air-surface-SSN hunter-killer teams.<sup>376</sup>

The effectiveness of Iran's submarines will also depend heavily on the degree of US involvement in ASW operations. The Arab Gulf navies only have token ASW capability. If the Kilos do not face US-led ASW forces, they could operate in or near the Gulf with considerable impunity. If they did face US-led forces, they might be able to attack a few tankers or conduct some mining efforts, but are unlikely to survive extended combat. This makes the Kilos a weapon that may be more effective in threatening Gulf shipping, or as a remote minelayer, than in naval combat. Certainly, Iran's purchase of the Kilos has already received close attention from the Southern Gulf states, and convinced them that they must take Iran more seriously.

Iran has talked about expanding this force. In January-February 2012, Rear Admiral Farhad Amiri of the Iranian navy claimed that Iran was designing and producing two new indigenously developed submarines, the *Fateh*-class (500 tons) and the *Be'sat*-class (12,000 tons); Iran also may have been developing *Qaa'em*-class submarines, which were designed to supplement its *Kilo* fleet, but have since likely been folded into its other submarine development programs.<sup>377</sup> These claims, however, cannot be verified, and it is unknown whether or not Iran will field these assets. They do, however, reflect the importance Iranian military personnel place on submarines as a potential asset to counter or upset US naval presence in the region.

### ***Midget Submarines*** <sup>378379</sup>

As has been mentioned earlier, Iran's "midget" submarines represent another asset in the IRGC Navy's asymmetric forces. They are small, unobtrusive, and can operate in shallower waters better than the much larger Kilo. While they are relatively unsophisticated in comparison to larger, more modern submarines, their small size and low noise profile can be used launch surprise attacks on US forces and covertly lay mines

- IS-120 Ghadir "midget" submarine
  - Number in Service: 16
  - Displacement: 137.8 tons
  - Speed: 10 kts surfaced/8 kts submerged
  - Max Depth: Unknown
  - Armament: 2 x 533 mm torpedoes. Can carry mines instead of torpedoes. Some reporting indicates that MANPADs are carried aboard.
  - Electronics: I Band surface search or navigation
  - Sonar: Active/Passive
- *Nahang*-class:
  - Number in Service: 1
  - Displacement: 350 tons
  - Speed: 8kts
  - Max Depth: 200 m
  - Armament: 2 x 533 mm torpedoes in drop collars. Can also carry 4 MDM-6 or EM-52 smart mines.
  - Electronics: Surface search or navigation radar.
  - Sonar: Bow-mounted active/passive sonar.
  - EW: ESM mast similar to Russian "Stop Light" type.

Note: The *Nahang* is reportedly stationed in the Caspian Sea, but can be transported overland to the Gulf.

While they would be unable to survive for any considerable length of time if they engaged prepared US forces, small submarines can be widely dispersed, used without warning against targets without ASW capability or that appear to lack readiness. They do pose a threat to US forces or unprotected commercial craft in a limited asymmetric campaign or the opening stages of a major conflict. Importantly, it must be noted that the modern South Korean ASW corvette sunk by North Korea in 2010, the *Cheonan*, is thought to have met its end at the hands of a North Korean *Yono*-class submarine, on which both the *Nahang* and the *Ghadir*-class are based.<sup>380</sup> Consequently, it is clear that these vessels are capable of damaging or even sinking better-equipped, more advanced forces.

### ***Swimmer Delivery Vehicles (SDVs)*** <sup>381382</sup>

The capabilities of Iran's SDVs are not fully described in open source reporting. It is likely that their primary purpose is reconnaissance, sabotage, and the insertion of special operations soldiers

and combat divers. They are likely restricted to short-range, coastal operations. Although it appears that their capability to threaten US forces directly are limited given their lack of armament and range, their small size and ability to elude detection render them potentially dangerous in an asymmetric campaign, particularly in a sabotage capacity.

- Al-Sabehat 15:
  - Number in Service: 10 (est.)
  - Armament: Up to 17 limpet mines
- *Ghavasi*-class “Chariot”:
  - Number in Service: 1
  - Armament: Unknown. Possibly limpet mines carried by combat divers, or a single 533 mm torpedo.

### **Iran’s Bases and Other Assets for “Closing the Gulf”**

Iran’s submarines are only a small part of the assets it can use. Iran has a wide range of surface assets and has naval bases and small military and civil, and contingency facilities in many places in the Gulf and in the Gulf of Oman. It has “stacked” layers of different types of land-based anti-ship missiles in the Strait of Hormuz, and it has the ability to operate from a range of islands near the main shipping channels in the Gulf, including Sirri and three islands it has seized from the UAE: Abu Musa and the Greater and Lesser Tunbs.

#### ***Iranian Military Installations in the Gulf***<sup>383</sup>

There numerous coastal and island areas where Iran could disperse its forces to launch and sustain an asymmetric campaign to attempt to attack US and Southern Gulf forces, or impede or halt commercial traffic, or launch small raids. These include the following bases and facilities:

- Bandar-e Khomeini (30°25’41.42”N, 49° 4’50.18”E)
  - The exact naval/military presence at Bandar-e Khomeini is unknown, and there does not appear to be a formal military facility. However, given this facility’s strategic location, it likely has a military dimension.
- Bandar-e Mahshahr (30°29’43.62”N, 49°12’23.91”E)
  - This base is largely limited to housing patrol boats speedboats, some of which are armed with anti-ship missiles and torpedoes. As of June 30, 2009, its observable assets include the following:
    - 3 IPS-16 Paykaap
    - 5 Bavar
    - 1 IPS-18 Tir
    - 7 battle-ready speedboats
    - 30+ non-battle-ready speedboats
    - 1 Mk III patrol boat
    - 2 unknown patrol boats
    - 5-6 unidentified support/patrol boats
- Khorramshahr (30°26’2.71”N, 48°11’34.25”E)

- Khorramshahr is the former headquarters of the Imperial Iranian Navy, and it is currently overseen and controlled by the IRGC-owned Shahid Mousavi industries group. It is the home to extensive repair and overhaul facilities of the IRGC Navy.
- Kharg Island (29°14'48.01"N, 50°19'48.88"E)
  - Kharg Island is the home of one of Iran's largest and most valuable petrochemical facilities. Its harbors are located alongside the protected eastern shore of the island with three observable individual harbors, though the other harbors are likely capable of hosting ships as well, and due to its strategic position, the island as a whole is probably capable of hosting much larger ships than what is visible.

Kharg's visible naval assets are composed of medium-large sized fast-attack crafts (FACs) such as several unknown types such as a Thondar look-alike, but with smaller rear-mounted missiles and a different bridge. There are also four more FAC or patrol boat of an unknown type. In the same harbor, there are a number of high-quality speedboats.

There are also a number of other military installations on the island, including a HAWK battery as well as several HQ-2 SAM systems of questionable operability. As of March 4, 2004, observable assets at the base include the following:

- 4 unknown patrol boats
- 20+ speedboats
- 1 unknown FAC

- Bandar-e Bushehr (28°58'2.58"N, 50°51'50.74"E)
  - This facility houses major assets of both the Iranian Navy and the IRGCN, as well as several of Iran's larger corvette-sized vessels. It also serves as a storage and repair/overhaul facility for Iran's naval assets.

Bandar-e Bushehr is also the home base for two of the IRIN's *Bayandor*-class corvettes, one of which is the IRIS 82 Naqdi, which has been refitted with two C-802 anti-ship missiles and new guns, which gives it an appearance distinct from that of the 81 Bayandor. This facility also houses 6-7 Kaman/*Sina*-class missile boats, including possibly the P228 Gorz. The port also houses a number of speedboats and semi-submersible vessels, as well as two RH-53D Sea Stallions and six AB-212 ASW helicopters. As of June 16, 2009, observable assets at the base include the following:

- 2 *Bayandor*-class corvettes
- 6 Kaman/*Sina*-class FACs
- 2 Hendijan support ships
- Various speedboats

As of January 16, 2010, the following assets have been observed at the naval academy (28°53'47.19"N, 50°51'3.96"E):

- 1 unidentified midget submarine (23 m)
- 2 unidentified midget submarines ( 17 m & 13 m)
- 3 probably Al Sabehat 15 SDVs
- 1 hover craft
- Various other small craft

- Asalouyeh (27°27'21.08"N, 52°38'15.55"E)
  - Inaugurated in 2008, this base is a recent addition to Iran's naval facilities. According to IRGCN Admiral Morteza Saffari, the base would house torpedo boats, FACs, shore-based anti-ship missiles, and possibly IPS-series patrol boats and Thondar FACs.

- Bandar-e Abbas (Naval base: 27° 8'35.79"N, 56°12'45.61"E; IRGCN missile boat base: 27° 8'30.91"N, 56°12'5.58"E; IRGCN torpedo & MLRS boat base: 27° 8'21.13"N, 56°11'53.28"E; Hovercraft base and nearby naval airstrip: 27° 9'15.68"N, 56° 9'49.97"E)
  - Bandar-e Abbas has been the headquarters of the Iranian navy since 1977, and is located in the Strait of Hormuz itself. It is Iran's largest and most important naval base, as well as the home of the majority of Iran's submarines fleet, naval aviation assets, and hovercraft. Moreover, it also the home of Shahid Darvishi shipbuilders, which produces a large number of Iranian naval assets, including submersibles, landing craft, and tugboats. As of June 29, 2009, observable assets of the base include the following:
    - 1 Bandar Abbas support ship
    - A number of unknown support ships
    - 1 Jamaran (Mouj) frigate
    - 1 Alvand frigate
    - 3 Thondar missile boats
    - 2 IPS-16
    - 4 IPS-18
    - 31+ speedboats
- Jask (25°40'40.90"N, 57°51'4.54"E)
  - IRGC base located approximately 150 km to the east of the Strait of Hormuz. It is suspected to house Ghadir midget submarines, as well as F-27 maritime patrol craft.
- Bostanu (27° 2'58.22"N, 55°59'3.22"E)
  - Recently-established IRGCN FAC and midget submarine base. It is known to house ship repair and building facilities. Located approximately 25 km to the west of Bandar-e Abbas
- Chabahar
  - IRGCN base. It is the farthest east of all of Iran's military port facilities.
- Qeshm (26°43'10.09"N, 55°58'30.94"E)
  - IRGC base. Suspected to house midget submarines and is suspected to house a large number of coastal anti-ship ballistic missile bunkers. As of December 21, 2003, observable assets at the base include the following:
    - 34+ speedboats
- Sirri Island (25°53'40.20"N, 54°33'7.82"E)
- Abu Musa (25°52'22.32"N, 55° 0'38.62"E)
  - Occupied by Iran but claimed by the UAE. Suspected to house a small number of IRGCN forces. Also known to house HAWK SAMs and HY-2 "Silkworm" anti-ship missiles.
- Greater Tunb and Lesser Tunb (GT: 26°15'54.33"N, 55°19'27.75"E; LT: 26°14'26.08"N, 55° 9'21.18"E)
  - Occupied by Iran but claimed by the UAE. Home to heavily fortified airstrips and AA guns.

Iran can also use other shore-based anti-ship missile sites, other commercial ports, small harbors, and contingency facilities to support and deploy a wide range of military assets. These assets include surface ships, mines, land-based anti-ship missiles, maritime patrol aircraft, and combat aircraft with anti-ship missiles, UAVs, andUCAVs.

### ***Major Surface Warships***<sup>384385</sup>

Iran's key surface ships have been described earlier, and they seem unlikely to play a significant role in any Iranian effort to close the Gulf, but a summary analysis of their size and armament illustrates the range of surface threats that Iran might deploy:

- *Sa'am*-class light patrol frigates:
  - Number in service: 4
  - Displacement: 1,372 tons
  - Crew: 125-146
  - Speed: 39 kts
  - Armament: BM-21 artillery rockets, 3 x GAM-B01 20mm cannon, 1 x 76mm gun, 4 x SM-1 SAM launchers, 4 x C-802 anti-ship missiles (CSS-N-4 *Sardine?*), 2 x triple 324mm torpedo tubes (6 eff.), 1 x 114 mm gun
- *Mouj*-class corvette:
  - Number in service: 2
  - Displacement: 1,500 tons
  - Crew: 120-140
  - Speed: 28+ kts
  - Armament: 4 x C-802 anti-ship missiles (CSS-N-4 *Sardine?*), 4 x SM-1 SAM launchers, 1 x 76mm gun, 2 x GAM-B01 20mm cannons, 1 x Bofors 40mm AA gun, 2 x triple 324mm torpedo tubes (6 eff.), 1 x 76mm gun
- *Bayandor* (PF-103) missile/gun corvette:
  - Number in service: 2
  - Displacement: 900-1,153 tons
  - Crew: 140
  - Speed: 20 kts
  - Armament: 4 x C-802 anti-ship missiles (CSS-N-4 *Sardine?*), 3 x 76mm gun, 2 x Bofors twin 40mm AA guns, 2 x triple 324mm torpedo tubes
  - Electronics:
    - Radar: AN/SPS-6C D Band Air Search, Decca 1226SS I band surface search, Raytheon 1650 I Band Nav, Mk 36 I/J band FC
    - Sonar: AN/SQS-17 Active/Passive sonar
    - EW: AN/WLR-1 ESM, AN/UPX-12B IFF

As has been noted earlier, such ships are an uncertain asset. Their air and missile defenses are poor to mediocre, they are highly visible targets, and they are easy to detect by radar. Committing them to combat almost ensures their loss, as the US-Iranian “tanker war” during 1987-1988 demonstrated. Moreover, if Iran does use them, they constitute a highly visible act of act that is clearly attributable to Iran – justifying an immediate and massive response.

Despite this, Iran has been upgrading its frigate and corvette holdings and building new major combatants. One potential use is to intimidate Iran's GCC (and potentially Caspian) neighbors, pushing Iran's edge in a force-on-force conflict if the US isn't involved. Iran also probably has other, more unpredictable uses for these vessels – for suicide missions, as decoys, extended operations outside the Gulf before a conflict begins, raids in poor weather, or some other unforeseen use.

***Fast-attack Watercraft, Speedboats, Patrol Craft, and Hovercraft.***<sup>386387</sup>

Iran seems more likely to focus on the use of smaller ships. The IRGC Naval Branch and Iranian Navy's ability to use such assets is shown by wide range of smaller vessels that they can now use for asymmetric warfare:

- *Kaman*-class and *Sina*-class guided missile patrol boats:
  - Number in service: 10 *Kaman*, 3 *Sina*
  - Armament: 4 x C-802 anti-ship missiles or 4 Harpoon anti-ship missiles, 1 x OTO-Melara 76mm Rapid Fire gun, 1 x Bofors 40mm AA gun. Some *Sina* are equipped with a 20mm cannon instead of the Bofors 40mm
  - Electronics:
    - Radar: Signaal WM28 I/J band surface search and FC radar, Decca 1226SS I band surface search.
    - EW: Alligator ECM
- *Thondor*-class missile boat:
  - Number in service: 10
  - Displacement: 208 tons
  - Crew: 31
  - Speed: 35 kts
  - Armament: 4 x C-802 anti-ship missiles, 1 x twin 30mm AA gun, 1 x twin 23mm AA gun
- C-14 China Cat:
  - Number in service: 4-10
  - Displacement: 19 tons
  - Crew: 5
  - Speed: 55 kts
  - Armament: 4 x C-704 Nasr anti-ship missiles, 1x 122mm MLRS (12 barrels), 1 x 23mm cannon, and 1 x 12.7mm heavy machine guns on some craft
- Mk-13 Patrol Craft:
  - Number in service: 4-10
  - Armament: 2 x C-704 Nasr anti-ship missiles, 2 x 324mm torpedo tubes
- *Kajami*-class (Taedong-B) Submersible Torpedo Boat
  - Number in service: 3
  - Speed: 50 kts (est.)
  - Submerged speed: 4 kts
  - Armament: 2 x 324mm torpedoes
- *Gahjae*-class (Taedong-C) semi-submersible torpedo boat:
  - Number in service: 3 (est.)
  - Speed: 50 kts
  - Submerged speed: unknown



- Armament: 2 lightweight torpedoes
- IPS-28 *Tir*-class torpedo boat:
  - Number in service: 10
  - Displacement: 32 tons
  - Crew: 6
  - Speed: 52 kts
  - Armament: 2 x 533mm, 1 x 12.7mm heavy machine gun
- IPS-16 fast attack craft (*Peykaap/Peykaap I, Bavar Peykaap II, Zolfaqar/Peykaap III*):
  - Number in service: 17 (est.) *Paykaap*, 30 (est.) *Bavar*, 15 (est.) *Zolfaqar*
  - Displacement 13.75 tons
  - Crew: 3
  - Speed: 52 kts
  - Armament:
    - *Paykaap*: 2 x 324mm torpedo tubes, small arms
    - *Bavar*: 2 x C-701 “Kowsar” anti-ship missiles or C-704 “Nasr” anti-ship missiles, 2 x 324mm torpedo tubes, small arms
    - *Zolfaqar* 2 x C-701 “Kowsar” anti-ship missiles or C-704 “Nasr” anti-ship missiles, 2 x 12.7 mm heavy machine guns
- *Dalam*-class torpedo boat:
  - Number in service: 2 (est.)
  - Status largely unknown. Capable of firing Russian Shkval (Hoot) supercavitating rocket torpedoes
  - Possibly withdrawn from service?
- *Tarlan*-class torpedo boat:
  - Number in service: 15 (est.)
  - Displacement: 9.9 tons
  - Speed: 50 kts
  - Armament: 1 x Shkval (Hoot) rocket torpedo or other 533mm torpedo, 1 x 12.7mm heavy machine gun
  - Armament unknown according to Jane’s, but theorized that Shkvals could be mounted on the craft.
- Explosive motor boat:
  - Number in service: unknown
  - Crew: 1
  - Warhead: 500lb shaped charge (est.)
  - Escape vehicle: 1 x Yamaha Waverunner VX Sport jet ski
  - Note: This craft is designed to destroy larger vessels by ramming them. The pilot, however, is not intended to die in the attack, and is theoretically capable of escaping the vehicle before impact on a jet ski. The craft is rumored to be piloted by specially IRGC Special Forces operatives similar to combat divers.
- *Seraj-1*-class (Bladerunner) MLRS boat:

- Number in service: unknown
- Displacement: 2.5 tons
- Speed: 50-62 kts
- Armament: 1 x 12.7mm heavy machine gun mounted on the bow, 107mm MLRS mounted above the cockpit
- FB RIB-33 high speed patrol boats:
  - Number in service: unknown
  - Displacement: 3.2+ tons
  - Crew: 3
  - Speed: 57 kts (max.)
  - Armament: 1 x 11-barrel MLRS
- FB MIL-40 MLRS craft:
  - Number in service: 2
  - Displacement: 6.6 tons
  - Crew: 3
  - Speed: 62 kts
  - Armament: 1 x 11-barrel 107 mm MLRS, 1 x 12.7mm heavy machine gun
  - Rocket launching capability not noted in Jane's
- MIL-55 HSPB:
  - Number in service: 1
  - Displacement: 17.1 tons
  - Crew: 5
  - Speed: 72 kts
  - Armament: 1 x 11-barrel 107mm MLRS, 1 x 12.7mm heavy machine gun, mines
  - Potential armament not noted in Jane's
- *Torough*-class Patrol Boat (Boghammar):
  - Number in service: 20
  - Displacement: 7.7 tons
  - Speed: 46 kts
  - Armament: Variable. Typical armament consists of 1 x 12.7mm heavy machine gun and 1 x 106mm recoilless rifle
- *Ashoura*-class (MIG-G-0800):
  - Number in service: 100
  - Armament: Variable. Typical armament can consist of 1 x 12.7mm heavy machine gun, 1 x 12-barrel 107mm rocket launcher, or 1 x M-08 (Sadaf-1/2) mine. Other possible armaments include 107mm recoilless rockets, RPG-7 launchers, and small arms.
- Type-4 high-speed patrol boats:

- Specific stats unknown. Reportedly similar to the *Ashoura*-class of speed boats.
- Murce MIG-G-0900:
  - Number in service: 30
  - Armament: 3 x 12.7mm heavy machine gun, 1 x 12-barrel 107mm MLRS. Other possible armaments include 106mm recoilless rockets, RPG-7 launchers, and small arms.
- Parvin PGM-9
  - Number in service: 3
  - Displacement: 100-150 tons
  - Crew: 20
  - Speed: 22 knots
  - Armament: 1 x 40mm cannon, 1 or 2 x 20mm cannons, 2 x 12.7mm heavy machine guns, 1 x 81mm mortar, 4 racks of depth charges
  - Electronics: Furunno I Band Navigation
  - Mortars not mentioned in Jane's
- MIG-S-2600:
  - Number in service: 6
  - Displacement: 85 tons
  - Speed: 35 kts
  - Armament: 1 x 107 mm MRL, 1 x twin ZU-23mm cannon
  - Radar: Decca 1226
- 65' Mark III patrol boat:
  - Number in service: 13
  - Displacement: 46.3 tons
  - Crew: 8
  - Speed: 30 kts
  - Armament: Variable. Armament can consist of 12.7mm heavy machine guns, 7.62mm machine guns, Mk 16 20mm cannon, Mk 19 40mm grenade launcher, Mk3 40mm Bofors cannon, Mk4 60mm, or Mk2 81mm mortar. Small arms.
- Pashe (MIG-G-1900):
  - Based on US Mk II patrol boats. Reportedly armed with a twin ZU-23 23mm cannon. Also equipped with surface search/navigation radar.
- Ghaem (MIG-S-1800):
  - IRGCN patrol craft. Armament reportedly small arms and an Oerlikon 20 mm cannon.
- Kashdom-II inshore patrol craft:
  - Number in service: 15
  - Displacement: 19.6 tons
  - Speed: 50 kts
  - Armament: 1 x 23mm cannon, 1 x 12.7 mm heavy machine gun

- Peterson patrol boat:
  - Number in service: 30
  - Displacement: 20.1 tons
  - Crew: 5
  - Speed: 26 kts
  - Armament: 2 x 12.7mm heavy machine guns
  - Not found in Jane's
- BH-7 "Wellington" Mk5 hovercraft:
  - Number in service: 2-6
  - Displacement: 55 tons
  - Speed: 30-70 kts
  - Armament: 2 x C-802 anti-ship missiles, 2 x 12.7mm heavy machine guns

These craft are capable of carrying a wide range machine guns, rockets, missiles, and torpedoes, and all can be adapted to lay mines. As noted earlier, they are also being supplemented by new 70 knot low observable explosive boats designed for suicide missiles.

While most such vessels are unsophisticated, they could still be used in clusters or larger efforts to try to swarm US ships and overwhelm their defenses through sheer mobility and volume of fire. Alternatively, they could be used to conduct sporadic attacks in a long battle of attrition operating unpredictably from bases or hidden small sites anywhere in the Gulf or outside it.

#### ***Shore and Ship-based ASCMs*** <sup>388389</sup>

Iran possesses a large number of shore, ship-based, and air-launched anti-ship missiles and ASCMs, most of which are operated by elements of the IRGC. These assets include shore batteries of ASCMs near the Strait, along Iran's coast and on its islands in the Gulf, many of which are on mobile launchers. It is notable that the US never successfully targeted Iraq's anti-ship missile assets during the war to liberate Kuwait although they were deployed along a far smaller coastal area. Many of Iran's missiles can be deployed on the smaller, harder to detect, and more expendable ships and boats in IRIN or IRGCN, or on Iran's fighters. Some could be remotely target by maritime patrol aircraft or UAVs.

Most of Iran's missiles are either Chinese-made, or derive from Chinese designs. Various reports indicate that they include the CSS-N-2 Silkworm, CSS-C-3 Seersucker (C-201), CSS-N-4 Sardine (C-801 Noor, C-801K), CSS-N-8 Saccade (C-802), C-701/TL-10 Kowsar, Sedjil, Ra'ad, Nasr, and the Ghader.<sup>390391</sup> Experts feel that the primary threats now come from the C-700 and C-800 series.

- CSS-N-4 Sardine/C-801 Noor\*
  - Number in service: 60-200 (includes all C-800 series missiles)
  - Range: 80km
  - Warhead: 165 kg
  - Speed: High subsonic
  - Launch platform(s): Truck launchers, Alvand/Mouj FFGs, Bayandor FSG, Hamzeh FSG, Kaman PTG, Thondar PCFG. Kilo possible.

- \*In January 2012, *Jane's* reported that Iran tested a reportedly upgraded version of the C-802 Noor missile during the Velayat-90 war games. The new missile, called the "Ghader," has a 200 km range according to Iranian sources. The credibility of these reports, as well as potential launch platforms for the missile remain uncertain.<sup>392</sup>
- C-801K (air-launched version of the C-801 Noor):
  - Range: 37 km
  - Warhead: 165 kg
  - Speed: High subsonic
  - Launch platforms: F-4 Phantom, Su-24 Fencer, Mi-17 Hip.
- CSS-N-5 Saccade/C-802
  - Range: 120 km
  - Warhead: 165 kg
  - Speed: High subsonic
  - Launch platforms: Truck launchers, Alvand/Mowj FFGs, Bayandor FSG, Hamzeh FSG, Kaman PTG, Thondar PCFG.
  - In 2010, Iran displayed the air-launched C-802k "Ghaem" next to a photo of an F-4 Phantom, which could potentially reflect its intended delivery platform. Some reporting indicates that this version of the missile possesses a greater operational range than the C-802.
- C-701/TL-10 Kowsar:\*
  - Launch platforms: trucks, shore batteries, ships, helicopters, and jets.
  - Kowsar TL-10A:
    - Range: 3-15 km
    - Speed: Mach .85
    - Warhead: 30 kg semi-armor piercing
    - Guidance: TV
  - Kowsar 1/C-701T:
    - Range: 4-15 km
    - Speed: Mach .8
    - Warhead 29 kg semi-armor piercing
    - Guidance: TV
  - Kowsar 2:
    - Little info. Likely IR-guided.
  - Kowsar 3/C-701R:
    - Range 4-25 km
    - Speed: Mach .78
    - Warhead: 29 kg
    - Guidance: Radar

- \* In February 2, *Jane's* reported that Iran unveiled a domestically-produced version of the C-701 called the "Zafar." Its exact capabilities remain unknown and unconfirmed.<sup>393</sup>
- C-704/Nasr:
  - Range: 8-35 km
  - Warhead: 130 kg
  - Speed: Mach .9
  - Guidance: Radar
  - Launch platforms: Shore and ship-based launchers
- CSS-C-3 Seersucker/HY-2
  - Number in service: 300
  - Range: 90 km
  - Warhead: 450 kg
  - Speed: High subsonic
  - Launch platforms: Truck or tracked launchers.
- Ra'ad:
  - Number in service: Unknown
  - Range: 360 km (claimed/unverified)
  - Warhead: 450 kg
  - Speed: High subsonic
  - Launch platforms: Truck or tracked launchers.
- RGM-84A Harpoon:
  - Range: 140 km
  - Warhead: 221 kg penetrating blast
  - Speed: Mach .8
  - Note: These missiles date to the late 1970s. Long thought to have been withdrawn from service, they have been sighted at Iranian military parades. The continued effectiveness of these units cannot be verified.

While many of these missiles are relatively short-ranged, the Strait of Hormuz is only 34 miles wide at its narrowest point, and Iran has many islands near the shipping channels. Smaller ships and boats are harder to detect by radar, and Iran might mount some missiles on commercial ships – a tactic it has practiced with other types of missiles.

Experts believe that Iran is likely planning to stack its missiles, avoiding the C<sup>4</sup>I difficulties associated with massive volleys while preserving their attritional effect against anti-missile systems. Modern anti-missile vessels carry only a limited number of SAMs that are effective against cruise and anti-ship ballistic missiles, restricted by the size of the ship and the expense of individual missiles. Iran, in contrast, has few physical or production line constraints on its supply of offensive missiles – although many indigenous platforms are of comparatively low technology.

This disjoint – large numbers of low quality missiles – may lead Iran to open any hostilities with its domestically-produced weapons, exhausting US and Gulf anti-missile systems before firing its

best weapons. This stacking threat – while it leaves the launchers and their guiding radar systems vulnerable for longer – does present a threat to military and commercial vessels within range of all systems in the stack.

### ***Anti-Ship Ballistic Missile: The Khalij Fars and Other***

Iran is seeking to acquire and deploy far more advanced anti-ship missiles, but its claims seem grossly exaggerated. For example, the commander of the IRGC, Brigadier General Mohammed Ali Jafari, announced the deployment of a “smart” anti-ship ballistic missile, the *Khalij Fars*, in a February 8, 2011 press conference. According to Iranian press reports, the *Khalij Fars* is allegedly capable of striking at moving ships in the Gulf at ranges of up to 150 km.<sup>394</sup>

- Khalij Fars
  - Number in Service: Unknown
  - Warhead: 650 kg
  - Speed (terminal): Mach 3 (est.)

The *Tehran Times* has reported that Jafari also claimed that Iran had developed “supersonic” smart ballistic missiles that “cannot be tracked and can hit targets with high precision” as well as “coastal radars with a range of 300 km.”<sup>395</sup> General Jafari also stated that the IRGC had recently completed studies on two mobile radars with a range of 60 km, which could be attached to small destroyers. Similarly, the Islamic Republic News Agency quoted General Jafari as stating that, “Iran is mass producing a smart ballistic missile for sea targets with a speed three times more than the speed of sound.” The Iranian Students News Agency quoted General Jafari as stating the following regarding the new weapon:

“As the enemy’s threats will likely come from the sea, air, and by missiles, the Revolutionary Guard has been equipped with capabilities to neutralize the enemy’s advanced technology.”<sup>396</sup>

While experts feel these claims are sharply exaggerated and Iran has little or no operational capability to use the *Khalij Fars* or any ballistic missile or long range rocket in the anti-ship more -- as well as has no meaningful over-the-horizon targeting capability -- Iran potentially could alter the regional naval balance if it ever did reach such a level of sophistication in guidance, range, reliability, and operational accuracy. It not only would threaten the naval balance, but potentially allow Iran to develop conventionally armed missiles that could strike at high-value targets such as desalination plants, power plants, oil platforms, and military installations with precision.

### ***Naval Mines***

As has been stressed throughout this analysis, naval mines can be used in a wide range of ways ranging from free floating, scattered mines that Iran could deny it had deliberately employed to sophisticated laying of “smart” mines. Iran could use almost any ship – Navy, IRGC, or commercial – to try to limit the freedom of movement for US and allied naval forces, block traffic into ports and petroleum facilities, and impede Gulf shipping traffic.

Iran has a considerable capacity to lay mines. It has stock of at least 2,000-3,000 naval mines – and some reports put the total as high as 20,000, including 5,000 bottom-influence and smart mines – as well as hundreds of vessels it could muster to lay them. In addition to the aforementioned combat vessels, Iran could use a wide range of other surface ships to mine a given portion of the Gulf (any surface ship can release mines).

Although the exact composition of Iran's arsenal of mines is highly uncertain, Iran is thought to have increased its stocks of mines from some 1,500 at the time of the Iran-Iraq War to well over 6,000, be able to produce large numbers of cheap conventional mines, and have adapted and produced a range of smart mines. Iran is believed to have significant stocks of more advanced "smart mines" equivalent to mines like the Russian MDM-6 and the Chinese EM-52, as well as the Chinese MC-52, the EM-55, the EM-31, and the EM-11.

- MDM-6:
  - Type: Bottom
  - Warhead: 1,100 kg
  - Operational Depth: 12-120 m
  - Fusing: Magnetic, acoustic, pressure

Note: The MDM-6 is a sophisticated mine that detonates in response to magnetic, acoustic, or pressure influences within a radius of 50-60 meters, and it has an operating depth of approximately 12-120 meters. It is a moored mine that fires a torpedo-like warhead when it senses a ship, and the mine's warhead consists of 1,100 kg of high explosive. The MDM-6 can be laid by number of systems, including the 533 mm torpedo tubes of Iran's *Kilo*-class submarines, or from surface ships with the appropriate rail and stern ramps.<sup>397</sup>

- EM-52:
  - Type: Bottom, rising
  - Warhead: 300 kg
  - Operational Depth: 4.8-183 m
  - Fusing: Acoustic

Note: This mine is guided in its "rocket" ascent phase. It can be deployed with a submarine's torpedo tubes. It is considered to be Iran's most potent mine, and, according to some reporting, may be able to pierce the keel of a US aircraft carrier.<sup>398</sup>

Mines with capabilities like those of the EM-52 and the MDM-6, as well as any other similar "smart" mines in Iran's arsenal, may be capable of tracking multiple targets, and can be difficult to detect as they rest on or near the seafloor. Even relatively unsophisticated "dumb" mines, however, present a threat to US forces and Gulf shipping, as they are not easily detected or removed, and can be laid in large numbers by almost any ship that has the capacity to physically carry them.

For instance, an Iranian M-08 World War I-era mine nearly sank the USS Samuel B. Roberts after the ship struck it on April 14, 1988.<sup>399</sup> Although the M-08 is an antiquated moored contact mine, it nearly sank an advanced US naval ship that was caught off guard. Consequently, Iran's ability to lay a large number of mines in a short period of time remains a critical aspect to its stated capability to deny US forces access to the Gulf, and impede or halt shipping through the Strait.

The fact that Iran can lay mines in so many different ways over so wide an area also presents major problems in terms of mine warfare for the US, its Gulf allies, and Britain and France. The US now permanently deploys a force of four minesweepers and currently deploys an additional four minesweepers, an extensive ship-based force of minesweeping helicopters, and unmanned undersea vehicles. The Saudi Navy has four aging US Navy MSC-322 (Addriyah-class)



minesweepers, and three modern UK Sandown (Al Jawf-class) mine hunters, and several southern Gulf navies have minesweeping helicopters.

As noted earlier, the US has made upgrading its mine warfare capabilities in the Gulf a key part of the new strategy that it announced in January 2012, and the US Navy has extensively planned for both mine warfare in the Gulf under current conditions and upgrading its forces and cooperation with its allies in the future. While these new capabilities are not yet in place, and it may be some time before they reach full effectiveness, the US Navy will soon have a much higher capacity to detect and eliminate mines – particularly if it cooperates with European navies.

The US and its Arab Gulf allies now have relatively limited assets to deal with possible forms of mine laying over so wide and oceanographically complex a region. Any success is heavily dependent on the willingness of the US and GCC states to act immediately if Iran is detected dispersing its mines, and/or arming various craft for actual mine warfare missions. This puts a heavy emphasis on preventive attacks versus mine warfare.

Mine warfare has also long been recognized as a key potential weakness in both US Navy capabilities and in NATO. It is unclear how effective the US has been in modernizing its mine detection and sweeping capability, and NATO European powers have done a better job in slow, peacetime sweeping operations in war. Britain is supposed to have the most modern such vessels in NATO European forces – and its Sandown-class mine sweepers failed to detect an Iraq mine field during the naval campaign in 1991.

This helps explain why the US announced in early 2012 that it would deploy a “mothership” (converted amphibious assault ship) to the Gulf to support mine warfare vessels and SOF. US mine warfare capabilities will also improve steadily in other ways in the near future. As has been described earlier in this analysis, the US has now made upgrading its mine warfare capabilities in the Gulf a key part of its strategy. It held joint exercises with the British, French, and Gulf navies in the fall of 2012 and spring of 2013, and it plans to upgrade its mine warfare forces and cooperation with allied mine forces in the future.

While it may be some time before its new capabilities reach full effectiveness, the US Navy is also developing a much higher capacity to detect and eliminate mines. It is moving away from a classic mine hunting and killing approach to one based on detailed mapping of the debris and objects on the bottom in key areas. This allows it to quickly detect changes and possible mines. It is deploying a family of unmanned submersible mine warfare vessels to detect and kill mines, and will replace the use of divers with unmanned systems designed to detect mines and then detonate mines on a proximity and contact basis. These will have the ability to counter the sensors on “smart” mines.

#### ***Maritime Patrol Aircraft<sup>400401</sup>***

Iran’s P-3F maritime patrol aircraft and reconnaissance are aging, and are large, vulnerable, slow fliers that are easy to detect. Only two to three P-3s now seem to be operational. Nevertheless, Iran has Cessnas and some other smaller aircraft it can use for some aspects of these missions and these aircraft could still play a significant role in any asymmetric warfare scenarios where they could not be engaged and shot down.

- P-3F Orion:
  - Number in service: 2-3

- Iran's Orions are the most capable patrol aircraft of Iran's navy, and they carry out ASW and maritime patrol operations. According to reports from the Gulf, however, the sensors these aircraft possess have degraded as a result of wear and tear, and a lack of spare/replacement parts.
- Da-20A Falcon:
  - Number in service: 1-3
  - Iran's Da-20As have reportedly been fitted for electronic warfare and electronics intelligence missions. Their configuration and mission capability is uncertain.
- C-130H:
  - Number in service: 5 (est.)
  - Iran uses its C-130s for transport as well as aerial reconnaissance. These aircraft could potentially be used as a platform for laying mines as well.
- Fokker F-27 400M and 600M Friendship:
  - Number in service: 4 (2 of each class)
  - These aircraft are used by the IRGCN as logistics and patrol aircraft. Some reporting indicates that they have been adapted for mine-laying operations.
- DO-228:
  - Number in service: 2 (est.)
  - Twin engine maritime patrol aircraft fitted with surface search radar.

### ***Helicopters***<sup>402403</sup>

Iran's naval aviation assets include a number of multipurpose helicopters, most which are used for transport, logistics, and can be fitted with machine guns and rockets. Iran also possesses approximately 50 AH-1J dedicated helicopter gunships. Their capabilities, however, have likely deteriorated without access to spare parts and modern weapons.

### ***Torpedoes***<sup>404405</sup>

As noted earlier, Iran has a variety of torpedoes, including wake homing designs. Some can be used at long ranges of 4,000 to 5,000 meters. Others can equip remotely controlled small craft or suicide vessels. Some sources also report it has a range of much longer range homing torpedoes, although experts seriously question such reports:

- 53-65KE:
  - Range: 26 km at low speed, 11 km at high speed
  - Speed: 44-65 kts
  - Guidance: Wake-homing
  - Fusing: Contact and magnetic
  - Warhead: 300 kg
  - Depth: 0-366 m
- TEST-71MKE & ME-NK:
  - Range: 12.8 km-26 km
  - Guidance: Active/Passive homing (wire guided)

- Fusing: Contact and magnetic
- Warhead: 205 kg
- Depth: 0-366 m
- PT-97W/YT534W1:
  - Range: 8.7 km-13 km
  - Speed: 35-40 kts
  - Guidance: Passive acoustic homing, wake-homing
  - Fusing: Contact and magnetic
  - Warhead: 250 kg
  - Depth: 2-14 m
- CHT-02D:
  - Range: 8.7-13 km
  - Speed: 35-40kts
  - Guidance: Passive acoustic homing, wake-homing
  - Fusing: Contact and acoustic
  - Warhead: 250 kg
  - Depth: 2-14 m
- VA-111E Shkval “Hoot”:
  - Range 11-15 km
  - Speed: about 200 kts
  - Guidance: Internal – straight line
  - Fusing: Magnetic or timer
  - Warhead: 700 kg
  - Depth: 6 m

Note: The VA-111E is a supercavitating torpedo. This means that the torpedo generates a gas cavity around itself while it moves through water, which enables it to move at extremely high speed. As a result, however, it does not have sonar tracking, and can only travel in a straight line. These properties render the VA-111E an excellent weapon for an ambush or first strike on unsuspecting targets, but disadvantage it in the sense that it cannot “lock on” a target. It is currently believed that Iran has a very limited number of these torpedoes, potentially as few as two.

- Mk-44/46 & ET-52:
  - Range: 5.6 km
  - Speed: 30 kts
  - Guidance: VHF active. Capable of helical search patterns.
  - Fusing: Contact
  - Warhead: 34 kg
  - Depth: 0-305 m
- DPRK 32 cm Torpedo:

- Range: 4.8 km
- Speed: Approximately 30 – 35 kts
- Guidance: Passive acoustic homing, wake-homing
- Fusing: Contact and magnetic
- Warhead: Approximately 45 kg
- Depth: 2-14 m

### ***UCAVs and UAVs***

As previous Figures have shown, Iran possesses a number of UAVs and UCAVs of varying sophistication and capability, including the Shahed 129, *R'ad*, the *Karrar*, the *Ababil*, and *Mohadjer*. Outfitted with explosives, they could be used as remotely-piloted bombs. As in the case of Iran's ASCMs and light fast-attack craft, significant numbers of these assets armed with an explosive charge could be able to swarm US ships and overwhelm their defenses. Both the *Karrar* and the *R'ad* are known to have ranges in excess of 1,000 km, and can destroy targets with guided munitions.<sup>406</sup>

Iranian military officials have spoken extensively in public about the progress made by Iran in the area of UAVs and UCAVs. In a September 2012 news conference, IRGC Commander Jafari told reporters that Iran had produced a new generation of UAV called the "*Shahed 129*." Jafari said the Shahed 129 was capable of 24-hour non-stop flight, could carry out combat and reconnaissance missions, was armed with Sadid missiles able to hit long distance targets, and was IRGC's latest achievement in this field. (ISNA, 17 September)

**Figure 20** has provided a rough unclassified summary of the names, stated purposes and capabilities, and the ranges of Iran's UAVs and UCAVs.

### ***US and Arab Gulf Options for Competing with Iran's Asymmetric Forces***

Many of the US and Southern Gulf options for dealing with Iran's conventional and asymmetric forces have already been discussed. The US, Britain, France, the Southern Gulf states, and other Arab states have long been reacting to both the threat posed by Iran's conventional forces and growing asymmetric capabilities, and its ties to non-state actors. Nevertheless, the net impact of Iran's extensive asymmetric assets and doctrine on Iranian, US, and Gulf capabilities remains uncertain. Neither the US nor any other conventional power has yet engaged asymmetric forces of the size and magnitude of those of Iran, therefore a net assessment of Iran's capabilities on the Gulf military balance is problematic and theoretical at best.

What is certain is that Iran's doctrine of using light fast-attack watercraft, submarines, mines, missile barrages, and other irregular warfare assets provides Iran with the ability to strike at critical infrastructure, Gulf commerce, larger conventional forces with little or no warning, and give it the potential capability to halt shipping in and out of the Gulf for a short period of time. This makes Iran's asymmetric warfare capabilities of key concern when assessing Iran's capacity to challenge the US and other large conventional military forces in the region.

## US Forces in the Gulf

The US and its Gulf allies have established a major conventional presence in the Gulf in response to Iran's expanding capacity to wage asymmetric warfare. The US maintains installations in Kuwait (several jointly operated air and military facilities), Qatar (key air and command and control facilities), Bahrain (where the US 5<sup>th</sup> Fleet is currently based), and Oman (preposition and contingency facilities). And as a legacy of forces stationed there between 1990 and 2003, Saudi Arabia also has bases that could accommodate US troops in an emergency.

The US cooperates closely with Saudi Arabia and the UAE, and has large groups of military advisors and contractor support in both countries. Britain and France also play a major role. Britain is particularly important in supplying key weapons to Saudi Arabia and in supporting Oman, and France plays a substantial role in Djibouti and the security of the Red Sea.

The US is strengthening its own forces. In January of 2011, the US announced that it would retool and modify an aging amphibious transport ship, the USS *Ponce*, to become what the US military has designated as an Afloat Forward Staging Base (AFSB) for military operations in the Middle East. According to US military documents obtained by the Washington Post, the purpose of this vessel will be a floating base for US special operations personnel, mine-clearing craft (MH-53 Sea Dragon helicopters), and patrol boats. The ship will also be used a test-bed platform for the Navy's Laser Weapons System and will be deployed to the Gulf sometime in 2014.

The documents indicated that the command vessel will be able to launch the high-speed watercraft and helicopters used by US Special Operations Forces.<sup>407</sup> Additionally, it must be noted that this ship will serve as an interim vessel before two purpose-built AFSBs can enter service in 2014.<sup>408</sup> Given its stated capabilities and area of operations, this AFSB and its successors will likely be employed as bases to counter Iran's mature arsenal of mines, and strike at Iran's asymmetric assets in the Gulf if necessary. There already have been reports that the US is also building up its demining forces in the Gulf for this purpose and beginning to deploy added Special Forces capabilities.

The US is also reshaping its force posture in the Gulf to take account of its withdrawal from Iraq and the growth of the Iranian threat in other ways. It is deploying advanced missile defense cruisers to the Mediterranean and can rapidly deploy additional air and missile defenses to the Gulf. It is steadily improving its intelligence, surveillance, and reconnaissance capabilities in the region, and is equipping its long-range B-2 stealth bombers with new hard target bombs. In a crisis, it could rapidly deploy F-22 and F-35 fighters that have additional stealth attack capability.

In addition to traditional conventional systems, the US has developed several assets to counter the kinds of threats that Iran's asymmetric fast-attack craft and swarming tactics present – although most are still in the R&D stage. These assets include the Littoral Combat Ship (LCS) and the US Navy's Spike missile program. The LCS was designed to act as a counter to the kinds of threats posed by Iran's light fast-attack craft and other asymmetric assets. It has a shallow draft, and its design emphasizes speed, maneuverability, and mission flexibility.<sup>409</sup>

The Spike missile, while not yet in active service, is a small guided missile being developed by the US Navy as an armament for UAVs and surface ships. The Spike is an optically-guided fire-and-forget missile with a range of approximately two miles and carries a 2.2 kg warhead.<sup>410</sup> Highly versatile, the Spike could be used to great effect against Iran's light, fast-attack crafts. Although

these systems are unproven, they are revealing in terms of the US's perception of asymmetric threats and its continuing efforts to counter such threats directly.

The US Navy's weakness in countermine warfare, however, remains a critical area of concern for US military planners and policy makers in the case of a conflict with Iran. In 2006-2007, the US Navy retired and sold its modern *Osprey*-class minesweepers, and its CH-53/MH-53 helicopters are aging. The Navy has decided to replace both systems with the LCS and the MH-60S Seahawk helicopter in the stead of the *Osprey* and the CH-53/MH-53, respectively. While the Navy currently has 12 LCS and 154 MH-60 helicopters in service, the systems they employ to detect and destroy mines have suffered setbacks in terms of development, performance, and delivery, and are largely untested in conflict.<sup>411</sup>

These include the following:<sup>412</sup>

- Raytheon Airborne Mine Neutralization System (AMNS – MH-60S only)
- BAE Systems Archerfish (expendable underwater vehicle that destroys or detonates mines)
- Northrop Grumman Rapid Airborne Mine Clearance System (RAMICS)
- Raytheon AN/AQS-20A towed sonar
- Northrop Grumman Airborne Laser Mine Detection System (AN/AES-1 ALMDS)
- EDO Corporation Organic Airborne And Surface Influence Sweep (OASIS)

Moreover, the mine warfare modules for the LCS are still in development. The LCS class is not currently as capable in countermine warfare as a dedicated minesweeping platform such as the *Osprey*, and the MH-60S will be forced to rely on the systems listed above as it does not have the power to pull the same hydrofoil mine detecting platforms that the MH-53 can. These weaknesses and uncertainties present a challenge when confronting Iran's ability to lay large numbers of mines in a relatively short period of time.

### **The US Partnership with Southern Gulf, Other Regional, British, and French forces**

As has already been summarized in **Figures 3 and 4**, US forces in the region are complemented by those of its Gulf allies – which already possess advanced aircraft, surface-to-air missiles, ships, and land weapons – its ties to other allies like Jordan, and its long standing partnership with Britain and France.

As is described in more detail **Volume III: The Gulf and The Arabian Peninsula**, the US continues to furnish its regional allies with advanced weapons systems. **Figure 32, Figure 33, and Figure 34** provide a comprehensive list of arms sales to Iraq and the Southern Gulf states from 2002 to the present.

#### ***Major Improvements in Air Power***

The heightening tensions between Iran and the US and the Arab Gulf states during 2011 has led to further agreements and contracts of the sale of advanced aircraft and air and missile defense systems to Gulf states that will greatly strengthen Gulf air forces.

For example, the US Defense Security Cooperation Agency (DSCA) notified Congress on October 20, 2010 of a 10-year \$60 billion US arms sale to Saudi Arabia. The deal included 84 F-15 Saudi Advanced (SA) fighter aircraft, and upgrades for the existing fleet of Royal Saudi Air Force F-15S

multi-role fighters. The Obama administration announced that it had concluded a deal with Saudi Arabia to transfer the 84 F-15SA fighters for approximately \$29.4 billion US on December 24, 2011. The aircraft are scheduled to be delivered in 2015, with accompanying upgrades to Saudi Arabia's existing fleet of 70 F-15s and various aerial munitions.<sup>413</sup>

The October 20, 2010 notification also included 70 AH-64 Apache attack helicopters (24 of which will be equipped with the Longbow Fire Control Radar system), 72 UH-60M Blackhawk utility helicopters, 36 AH-6I "Little Bird" light attack helicopters, and 12 MD-530F light turbine helicopters, among other weapons systems.<sup>414</sup> Similarly, the US and the UAE announced a \$5 billion US arms sale on November 8, 2010 that included 60 AH-64D Apache helicopters.<sup>415</sup> Lastly, the UAE also opened a new naval base at Al Fujairah near the eastern entrance to the Strait of Hormuz on October 10, 2010.<sup>416</sup>

On December 29, 2011, Andrew J. Shapiro, the Assistant Secretary of Political-Military Affairs, stated the following in a special joint press briefing on this and potential future arms sales to Saudi Arabia,<sup>417</sup>

We are pleased to announce that over this past weekend, the United States and Saudi Arabia signed a letter of offer and acceptance for the sale of up to 84 advanced F-15SA fighter aircraft. It also includes upgrades to its current fleet of 70 F-15 aircraft, as well as munitions, spare parts, training, maintenance, and logistics.

This sale is worth \$29.4 billion. These F-15SA aircraft, manufactured by the Boeing company, will be among the most sophisticated and capable aircraft in the world. This agreement serves to reinforce the strong and enduring relationship between the United States and Saudi Arabia. It demonstrates the US commitment to a strong Saudi defense capability as a key component to regional security.

Since announcing in June – in 2010 our intent to conclude this sale, the Departments of State and Defense have worked closely with the Saudi Government and industry to finalize the particulars of the deal. Jim and I both recently made separate trips to Saudi Arabia, in part to discuss the sale.

Let me outline a few of the reasons why this defense package is so important and historic, and how it will advance US national interests. This sale will send a strong message to countries in the region that the United States is committed to stability in the Gulf and broader Middle East. It will enhance Saudi Arabia's ability to deter and defend against external threats to its sovereignty. It will advance interoperability between the air forces of our two countries through joint training and exercises. And lastly, this agreement will positively impact the US economy and further advance the President's commitment to create jobs by increasing exports. According to industry experts, this agreement will support more than 50,000 American jobs. It will engage 600 suppliers in 44 states and provide \$3.5 billion in annual economic impact to the US economy. This will support jobs not only in the aerospace sector but also in our manufacturing base and support chain, which are all crucial for sustaining our national defense.

I also wanted to note that this sale was carefully assessed under the US Government's Conventional Arms Transfer Policy. This policy requires such sales be deemed in the national security interests of the United States, are consistent with the country's legitimate security needs, and support US regional security objectives. With this agreement, the United States and Saudi Arabia have accomplished a historic achievement in our longstanding security partnership, a partnership that furthers security and stability in the Gulf region. Our longstanding security relationship with Saudi Arabia and other partners in the region has been a primary pillar of regional security for decades. And this sale further illustrates the firm commitment of the United States to the security and stability of the Gulf region.

The Principal Deputy Under Secretary of Defense of Policy, Dr. James N. Miller, elaborated further on the package as well as the intentions of the sale,

Let me start by reiterating that the United States is firmly committed to the security of the Kingdom of Saudi Arabia, as we have been for nearly seven decades, and that more broadly, the United States and Saudi Arabia have a strong mutual interest in the security and stability of the Gulf. Close cooperation between our militaries

is central to that security and stability, and we are really announcing today the most recent example of that cooperation.

On December 24<sup>th</sup> in Riyadh, the United States and Saudi Arabia finalized the letter of offer and acceptance, or LOA, for the purchase of 84 F-15SA aircraft and, as Andrew said, for the upgrade of an additional 70 F-15SA aircraft to this SA configuration. And this government-to-government or foreign military sale is valued at \$29.4 billion.

I'd like to say just a few words about the capabilities that are under consideration. This aircraft, the F-15SA, will be the most capable and versatile aircraft in the Royal Saudi fighter inventory. And indeed, it will be one of the most capable aircraft in the world. The F-15SA will have the latest generation of computing power, radar technology, infrared sensors, and electronic warfare systems. As one example, the F-15SA will be equipped with an active electronically-scanned array radar, or AESA. This radar includes the latest technology and will ensure that Saudi Arabia has the capability to operate against regional air threats. This sale also includes AMRAAM and AIM-9X air-to-air missiles, which provide both radar and infrared guided capability. The F-15SA will be able to strike targets day or night in all-weather with a variety of precision-guided munitions. The air-to-ground weapon capability includes laser-guided and GPS-guided weapons, along with missiles that can attack ground-based radars and missiles – the Harpoon in particular specialized for maritime attack capabilities.

The communications systems of the F-15SA will allow the US Air Force and Royal Saudi Air Force to operate effectively together in the same airspace. And the system's interoperability will also allow both countries to – excuse me – to participate in coalition training, which is a priority for both of our countries. And in fact, this F-15SA package includes not just aircraft and munitions but the training and logistics support that Andrew talked about, and it's a very robust package. Much of the Saudi training in the F-15SA will occur alongside US forces. This will enhance our already strong defense relationship. And approximately 5,500 Saudi personnel will be trained through 2019 – 5,500 through 2019, further strengthening the bonds between our forces and between our countries.

I've provided just a very high-level overview of the F-15SA's impressive capabilities, and I know that the Air Force and the Boeing company will be glad to offer a lot more details. As Andrew said, the US-Saudi security relationship has been a pillar of regional security for decades. And this F-15SA sale demonstrates the firm commitment of the United States to the kingdom, and reinforces our mutual commitment to security and stability in the Gulf...

We expect the first delivery of the F-15SA of the new aircraft in early 2015 and expect the upgrades of the F-15S to the SA configuration to start in 2014. That's the expectation now. Of course, schedules are as schedules are.

With respect to the internal capability of the aircraft, it has very substantial capabilities. I'll give you just a little bit more in terms of the – I mentioned the – some of the munitions – the HARM anti-radiation missile that goes against radars for precision strike capabilities. We've got the Joint Direct Attack Munition, JADM; also the Paveway, which has an analogous capability, the Harpoon anti-ship missile; a very capable system called the Sensor Fuzed Weapon; and for the Defense people in the room, with the Wind Corrected Munitions Dispenser, which is just an incredibly capable system against moving vehicles; and of course air-to-air AMRAAM and AIM-9X capabilities as well. So very significant capabilities.

There's always the possibility that the Saudis would ask for more. This provides them everything that they asked for in their letter of request, and I know we have ongoing discussions that – where something else could be provided in the future.

In addition to purchasing US F-15SA fighters AH-64 Apache attack helicopters, Saudi Arabia agreed to purchase 72 Eurofighter Typhoons in 2006, which are currently in the process of being delivered.<sup>418</sup> This versatile 4.5 generation fighter is far more advanced and capable than any of Iran's aircraft, and will greatly empower Saudi Arabia to deter foreseeable Iranian aggression and launch retaliatory airstrikes against Iranian naval, coastal, and missile targets. As in **Figure 32**



shows, Saudis are also carrying out other major acquisitions programs with the US that will increase their missile, naval, land forces, and air capabilities.

**Figure 32- Major USA-Saudi Arms Sales, 2010-2014**

<b>Air Force</b>	
154 F-15SA Strike Eagle Fighters: 84 new, 70 upgrades	84 new F-15SA ordered March 2012. LoA signed for 70 upgrade F-15S-- F-15SA in Dec. 2011. Has also ordered: -DEWS Electronic Warfare Systems - AAQ-33 Sniper Surveillance & Targeting pods - AAS-42 Tiger EyesIRST pods - LANTIRN navigation pods - DB-110 recon pods (included. Early integration) - ARC-210 radios -More AIM-9X Sidewinder missiles for their F-15s
Training	Joint Threat Emitter order in Sept 2013 will give RSAF the ability to train against more realistic air defense threats.
Long-Range Precision Strike Weapons	October 2013 DSCA Request finally cleared the way for Harpoon Block II and longer-range SLAM-ER cruise missiles, along with shorter-range AGM-154C JSOW glide bombs & GBU-39 SDB-Is
<b>Air &amp; Missile Defense</b>	
PATRIOT PAC-3/ Config 3 Upgrade	Major contract signed June 2011. Using Direct Commercial Sales process, not FMS
<b>Land Forces</b>	
12 MD-530F Light Helicopters, SANG	Contract Signed July 2012
36 AH-6i Armed Reconnaissance Helicopters, SANG	Letter of Agreement for 36 reportedly signed in early 2012.
70 AH-64D Longbow Block III attack helicopters: Royal Guard, Army, SANG	Contracts began May 2012, but seems to be just a partial order. MTADS/PNVS and Longbow sensors ordered.
72 UH-60M Black Hawk utility helicopter, SANG	Oct. 2010 DSCA request, partial orders began in Late 2013. The Saudis already operate other UH-60/S-70 models.
126+ LAV Wheeled APCs, Army	June 2011 DSCA request for Army, sales numbers are hard to link to this request. SANG also operates them and has requests, signed a huge IAV contract in Nov. 2009.
15,000+ TOW Anti-armor missiles, SANG/ Army	December 2013 requests from the RSLF (1,750) and SANG (13,935). Saudi Arabia already uses TOW, but this scale is new.
Artillery: 54 M119A2 105mm, 36 M777A2 155mm, TPQ-36V Firefinder radars	Sept. 2011 DSCA request, no reports yet.
<b>Naval</b>	
Full Naval C4I System	November 2013 DSCA request, direct purchase from US gov't unlikely to ever be announced.
Mark V Patrol Boats	July 2013 DSCA request, no reports yet.
Littoral Combat Ship	No DSCA request yet, may be passed over for more capable ships.

Source: The Saudi's American Shopping Spree: F-15s, Helicopters & More," Defense Industry Daily, January 21, 2014. <https://www.defenseindustrydaily.com/a-2010-saudi-shopping-spree-06520/>

### *Missile Defenses*

On December 25, 2011, the US finalized an agreement to sell a \$3.5 billion US anti-ballistic missile system known as Theater High Altitude Area Defense (THAAD) to the UAE in the first foreign sale of the system. The system is designed to target and shoot down SRBMs and MRBMs inside and outside of the Earth's atmosphere.

The deal included two full THAAD batteries, 96 missiles, two Raytheon AN/TPY-2 radars, 30 years' worth of spare parts, and support and training to the UAE.<sup>419</sup> The deal was announced during Iran's execution of the Velayat-90 naval exercises during which Iran tested missiles, mines, and other naval assets. Moreover, this deal follows a 2011 \$1.7 billion US commercial contract to upgrade Saudi Patriot anti-missile systems, and a \$900 million US sale of 209 Patriot missiles to Kuwait.<sup>420</sup> The transfer of missile defense systems of this scale and sophistication is unprecedented, and they reflect the threat perceptions of both the US and its regional allies in the Gulf regarding Iran's robust ballistic missile capabilities.

These arms transfers and others like them to virtually every Arab Gulf State represent a trend in Gulf procurement that began in the mid-1990s. Given the strong presence of US and other conventional forces in the region, any Iranian successes, while damaging and disruptive, would be limited in scope and duration by the overwhelming conventional power of the US and its allies. The arms transfers also provide the GCC with the capability to retaliate to limited Iranian strikes without American support, lowering the response threshold and increasing the costs to Iran of any hostile action.

These purchases have also been supported by a steady increase in joint exercises between US forces, Gulf and other Arab forces, and European air and naval forces. Additionally, major US-led exercises designed to determine the best ways the US, allied, and Arab Gulf navies could to counter Iran's ability to "swarm," use mine warfare, use submersibles, use anti-ship missiles, and fight various forms of wars attrition were held in September 2012 and May 2013. It is unclear what the result of these exercises were in dealing with each of these difficult and uncertain challenges, but it is clear that the US is firmly committed to the defense of the Gulf.

These developments make it clear that not only is the US determined to outfit America's Gulf allies with some of the most advanced systems available in the pursuit of security in the Gulf and the Strait of Hormuz, but that it seeks to make them as proficient as possible in these powerful systems, avoiding past perceptions of Gulf militaries with top-notch equipment manned by under-trained soldiers.

Moreover, these arms transfers and the joint military exercises in the Gulf emphasize interoperability between US and Arab Gulf forces. In light of recent heightened tensions between the US and Iran over the Gulf and the presence of US forces in the region, these statements send a subtle, yet clear message that the US fully intends to bolster its military ties with its allies in the Gulf, an objective that includes supplying them with advanced weapons systems. This aid will provide the armed forces of the Gulf states with a qualitative superiority over their Iranian counterparts.

It also demonstrates that the US is in the region for the long haul. Despite the proposed pivot to Asia and America's reduced reliance on Gulf petroleum products, America's close and growing ties with Arab Gulf militaries demonstrates that the GCC will not have to face Iran alone. The emphasis on training, base construction, and interoperability suggests that even if US forces in the

region decline slightly from their current high, American reinforcements would be able to rapidly integrate with Arab forces in any confrontation over the Gulf or Strait.

More broadly, the US has taken a multifaceted approach to confronting Iran's allies and proxies. In addition to direct military action in Iraq and Afghanistan, the US equipped and trained the security forces and intelligence services of regional allies and client states such as Saudi Arabia, the UAE, Iraq, Lebanon, and Kuwait to provide a counterweight to Iran and its own proxies.

Notable examples include US assistance to the Lebanese Armed Forces, Saudi Arabia's campaign against the Houthi rebels along its border with Yemen, and US efforts to train and equip Iraq's security forces in counterinsurgency tactics.<sup>421</sup> Lastly, the US took steps to curb arms trafficking, and engaged in information campaigns that sought to attack and delegitimize Iran and its allies.

### **Dealing With the Broader Range of Problems in Gulf Internal Interoperability and Mission Focus**

The discussion of Iran's asymmetric forces also reinforces all the caveats highlighted in the discussion relating to the deep problems in cooperation between the Gulf states. These include a lack of interoperability, mission focus, and interest in the efficient use of defense resources and economies of scale.

The data in **Figure 33** can only be interpreted in detail by experts, but even the casual reader can see there is no standardization within the southern Gulf states. They show the degree to which each state has pursued its own military procurement plans without regard to the problems this creates for interoperability, common training and tactics, and economies of scale in training, service facilities, and in purchasing upgrades and munitions. Key missions like mine warfare and effective naval missile defense are not addressed and purchases are often made as much for their "glitter factor" in being unique or temporarily superior to a neighbor's purchases as on the basis of military merit.

In fairness, NATO made and is making some of the same mistakes, but the Southern Gulf states would be far better off focusing on NATO's successes than by repeating its failures. Unfortunately, they have so far ignored the calls for added unity from senior leaders like King Abdullah of Saudi Arabia, and often remain divided because of past feuds and petty rivalries. There is no way to correctly quantify the added cost and reduction in effectiveness caused by their failures in these areas, but a reasonable guesstimate is that costs have increased by 20-25% and effectiveness has been cut by at least 20-25% - leaving critical gaps in areas like dealing with Iran's expanding capabilities for mine and other forms of naval symmetric warfare.

As is discussed in detail in to **Volume III: The Gulf and The Arabian Peninsula**, the US can compensate in part by offering its advanced battle management, C<sup>4</sup>I, and intelligence, surveillance, and warning capabilities. The US cannot, however, keep all of the scarce assets needed constantly deployed in the Gulf, and the interoperability it creates can only be practiced during a limited number of joint exercises, and therefore leaves the Southern Gulf states with only limited effectiveness.

The US cannot make up for key mission gaps like mine warfare. It cannot compensate for a lack of integrated air defense systems, maritime surveillance systems, and common land warfare doctrine for dealing with key areas of vulnerability like the "Kuwaiti hinge" near Iran. It cannot provide economies of scale in training, logistics, maintenance, and purchasing. It cannot help the

smaller Gulf military forces compensate for their lack of force size by taking advantage of their large neighbors' C<sup>4</sup>I/BM, training, and maintenance assets.

The US can, however, offer unique advantages as a military partner, compounded by the role Britain and France play in the Gulf. But this is not a rationale for feuding, rivalry, and overdependence at the cost of individual and mutual security and efficient military spending.

**Figure 33: Selected US and Non US Arms Sales in the Gulf****Kuwait**

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Due	Notes
Mk V	PBF	10	US\$461m	US	USMI	2009	n/k	For navy. Final delivery due in 2013.
KC-130J	Tkr ac	3	US\$245m	US	Lockheed Martin	2010	2013	Deliveries to be complete in early 2014.

**Bahrain**

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Date	Notes
Arma 6x6	APC(W)	60-80	US\$63.2m	TUK	Otokar	2011	2012	For national guard. Follow-on order to initial 2010 contract.

**Qatar**

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Due	Notes
MRTP 34	PBF	3	n/k	TURK	Yonka-Onuk Shipyard	2012	n/k	-
MRTP 16	PBF	3	n/k	TURK	Yonka-Onuk Shipyard	2012	n/k	-
AW139	MRH Hel	3	n/k	ITA	Finmeccanica (Agusta Westland)	2011	n/k	-

**Oman**

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Date	Notes
Al-Shamikh class	FFG	3	US\$785m	UK	BAE Systems	2007	2012	Project Khareef. Delivery delayed.

Fearless class	PCO	4	US\$880m	SGP	ST Engineering	2012	2015	-
Rodman 101	PB	3	US\$15.5m	ESP	Rodman Polyships	2012	2013	For costal police.
C-130J-30 <i>Hercules</i>	Tpt ac	2	n/k	US	Lockheed Martin	2010	2013	Delivery due in 2013 and 2014.
C-295	Tpt ac	8	n/k	Int'l	EADS	2012	2013	For air force. 5 in tpt and 3 in MP configuration.
NH90TTH	Tpt Hel	20	n/k	Int'l	NH Industries	2004	2010	10 delivered by mid-2012.

### Saudi Arabia

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Due	Notes
LAV II	APC (W)	724	US\$2.2bn	CAN	General Dynamics (GDLS)	2009	2011	For national guard.
CAESAR	Arty (155mm SP)	132	n/k	FRA	Nexter	2006	2010	For national guard. 100 delivered 2010–11. Additional order for 32 signed in 2012 for delivery by end-2014.
Patriot PAC3	AD system upgrade	n/k	US\$1.7bn	US	Raytheon	2011	n/k	Including ground-systems, training, package and support equipment
Eurofighter <i>Typhoon</i>	FGA ac	72	US\$8.9bn	Int'l	Eurofighter GmbH	2005	2008	Project Salam. First 24 delivered by Sept 2011. Original plan to final assemble remaining 48 in SAU dropped.
Saab 2000 <i>Erieye</i>	AEW&C ac	1	US\$670m	SWE	Saab	2010	n.k.	-
A330 MRTT	Tkr/Tpt ac	6	US\$600m	FRA	EADS	2008	2011	Delivery in progress.
F-15E <i>Strike Eagle</i>	FGA ac	84	US\$11.4bn	US	Boeing	2012	n/k	F-15SA variant. Part of a package incl

									F-15S upgrades, AH-64 and AH-6i helicopters that could total US\$24bn.
F-15S <i>Eagle</i>	FGA ac upg	68	n/k	US	Boeing	2012	n/k		Upgrade to F-15SA standard. Part of a package incl F-15S upgrades, AH-64 and AH-6i helicopters that could total US\$24bn
UH-60M <i>Black Hawk</i>	Tpt Hel	24	n/k	US	Sikorsky	2012	n/k		For national guard.
MD530F	MRH Hel	12	US\$40.7m	US	MD Helicopters	2012	2013		All to be delivered in 2013

## UAE

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Due	Notes
<i>Patriot Advanced AD System Capability (PAC) 3</i>	AD System	10 fire units, 172 msl	US\$3.3bn	US	Raytheon	2008	2012	To replace HAWK. First bty delivered 2012.
<i>Agrab (Scorpion) 120mm MMS</i>	Arty (120mm SP Mor)	72	US\$214m	RSA/SGP/UAE/UK	IGG	2011	n/k	
<i>Agrab (Scorpion) MMS</i>	120mm SP Mor	48	US\$106m	RSA/SGP/UAE/UK	IGG	2007	n/k	Delivery status unclear
<i>Abu Dhabi-class</i>	FFGHM	1	n.k.	ITA	Fincantieri	2009	2012	Delivery scheduled for late 2012.
<i>Baymunah-class</i>	FSGHM	6	US\$820m	FRA/UAE	ADSB	2003	2011	Fourth vessel launched Feb 2012. Delivery expected to be complete by 2014.
<i>Ganthoot-class</i>	FS	2	US\$117m	ITA	Fincantieri	2009	2012	Both vessels launched



								2012. Delivery scheduled for late 2012/early 2013.
<i>Ghannatha II</i> -class	PBFG	12	AED935m	SWE/UAE	Swedish Marine/ADSB	2009	n/k	3 to be built in Sweden; remaining 9 in UAE. First UAE-built vessel launched in Jul 2012.
<i>Al Saber</i> -class	PB	12	US\$34.6m	UAE	ADSB	2009	2011	For coast guard.
MRTP16	PB	34	AED460m	TUR/UAE	Tonca-Onuk Shipyard/ADSB	2009	2010	First 12 to be built in Turkey; remaining 22 in UAE. 20 delivered by Aug 2012.
Saab 340 <i>Erieye</i>	AEW&C ac	2	US\$234m	SWE	Saab	2009	2011	First delivered Apr 2011.
A330 MRTT	Tkr/Tpt ac	3	n.k.	Int'l	EADS	2008	2012	First delivered 2012; other 2 due by end-2012. Order for 2 more possible.
C-17 <i>Globemaster</i>	Tpt ac	2	n.k.	US	Boeing	2010	2012	-
C-130 <i>Hercules</i>	Tpt ac	12	AED5.9bn	US	Lockheed Martin	2009	n.k.	-
PC-21	Trg ac	25	US\$492.4m	CHE	Pilatus	2009	2011	First aircraft flew in 2011. Deliveries underway
UH-60M <i>Black Hawk</i>	Tpt Hel	26	n.k.	US	Sikorsky	2008	2010	16 delivered by end 2011; up to 23 to be upgraded

								with <i>Battle Hawk</i> kits.
UH-60M <i>Black Hawk</i>	Tpt Hel	14	US\$171m	US	Sikorsky	2009	n.k.	To be delivered by end of 2012.

## Iraq

Designation	Type	Quantity	Contract Value	Supplier Country	Prime Contractor	Order Date	First Delivery Date	Notes
BTR-4	APC (W)	420	US\$2.5bn	UKR	Khariv Morozov	2010	2011	Contract value includes 6 An-32 tpt ac.
Swiftships 35m	PB	15	US\$181m	US	Swiftships	2009	2012	For navy.
F-16C/D <i>Fighting Falcon</i> Block 52	FGA ac	18	US\$3bn	US	Lockheed Martin	2011	n.k.	Initial order for 18 in 2011, with additional 18 ordered 2012. 24 C and 12 D models. Delivery to be completed in 2018
Beech 350ER <i>King Air</i>	Tpt ac	6	US\$10.5m	US	Hawker Beechcraft	2008	2010	-
C-130J <i>Super Hercules</i>	Tpt ac	4	US\$292.8m	US	Lockheed Martin	2009	2012	Delivery to begin in 2012 and continue through 2013.
C-130J-30 <i>Super Hercules</i>	Tpt ac	6	US\$433.1m	US	Lockheed Martin	2009	2012	First delivered late 2012.
AN-32	Tpt ac	6	US\$2.5bn	UKR	Antonov ASTC/Aviant	2010	2011	Delivery delayed
Lasta-95	Trg ac	20	US\$230m	SER	UTVA	2007	2010	Option for further 16
EC635	Tpt Hel	24	US\$490m	FRA	Eurocopter	2009	n.k.	Cost incl. training and maintenance. First delivery reported mid-2011
Bell 407	Tpt Hel	27	US\$60.3	US	Bell	2009	n.k.	For army, AR-407 configuration. FMS contract
MT-LB	APC (T)	500	EUR150m	BLG	Terem	2012	n/k	
<i>Al Basra</i> -class	PCC	2	US\$86m	US	River Hawk Fast Sea Frames	2010	2012	Delivery scheduled for late 2012.

Source: IISS Military Balance 2013

**Figure 34: US Arms Sales to the GCC states and Iraq: 2002-2013**

**Bahrain**

- **May 11, 2012-** US loosened restrictions on Bahrain weapons sales that the State Department had implemented during political unrest and Bahraini suppression of protests. Though not expressly detailed it is believed these sales include air-to-air missiles.<sup>422</sup>
- **Sept. 14, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Bahrain for Armored High Mobility Multi-Purpose Wheeled Vehicles, TOW Missiles and associated equipment, parts, training and logistical support worth an estimated \$53 million.

The Government of Bahrain has requested a possible sale of 44 M1152A1B2 Armored High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs), 200 BGM-71E-4B-RF Radio Frequency (RF) Tube-Launched Optically-Tracked Wire-Guided Missiles (TOW-2A), 7 Fly-to-Buy RF TOW-2A Missiles, 40 BGM-71F-3-RF TOW-2B Aero Missiles, 7 Fly-to-Buy RF TOW-2B Aero Missiles, 50 BGM-71H-1RF Bunker Buster Missiles (TOW-2A), 7 Fly-to-Buy RF Bunker Buster Missiles (TOW-2A), 48 TOW-2 Launchers, AN/UAS-12A Night Sight Sets, spare and repair parts, support and test equipment, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering, technical and logistics support services, and other related elements of logistical and program support.

- **Nov. 4, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of 30 Army Tactical Missile Systems (ATACMS) T2K Unitary Missiles and associated parts, equipment, training and logistical support for a complete package worth approximately \$70 million.

The Government of Bahrain has requested a possible sale of 30 Army Tactical Missile Systems (ATACMS) T2K Unitary Missiles, Missile Common Test Device software, ATACMS Quality Assurance Team support, publications and technical documentation, training, US government and contractor technical and engineering support, and other related elements of program support.

- **July 28, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Bahrain of 25 AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM) and associated equipment, parts and services at an estimated cost of \$74 million.
- **Aug. 3, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of Bell 412 Air Search and Recovery Helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$160 million.
- **July 28, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of UH-60M Black Hawk helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$252 million.

The Government of Bahrain has requested a possible sale of nine (9) UH-60M Black Hawk helicopters, two (2) T700-GE-701D turbine engines, spare and repair parts, publications and technical data, support equipment, personnel training and training equipment, contractor engineering, logistics, and technical support services, a Quality Assurance Team, aircraft survivability equipment, tools and test equipment, and other related elements of logistics support.

- **July 21, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of JAVELIN missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$42 million.

The Government of Bahrain has requested a possible sale of 180 JAVELIN missile rounds and 60 JAVELIN command launch units, simulators, trainers, support equipment, spare and repair parts, publications and technical data, personnel training and equipment, US Government and contractor engineering and logistics personnel services, Quality Assurance Team services, and other related elements of logistics support.

- **July 21, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Government of Bahrain of continuing logistics support services/equipment for the F-16 aircraft and related components as well as associated equipment and services. The total value, if all options are exercised,

could be as high as \$150 million.

The Government of Bahrain has requested a possible sale of continuing logistics support services/equipment for the F-16 aircraft, ALR-69 radar warning receiver, ALQ-131 electric countermeasure pods, radar systems, and engines. The possible sale also includes support equipment, aircraft engine services/modification, repair/return services; depot level repair support; precision measurement equipment laboratory calibration, spare and repair parts, support equipment, supply support; personnel training and training equipment, publications and technical data, contractor technical services and other related elements of logistics support and to ensure aircraft operational availability.

- **Sept. 3, 2003** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of an AN/AAQ-24(V) NEMESIS Directional Infrared Countermeasures System as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$61 million.

The Government of Bahrain has requested a possible sale of one AN/AAQ-24(V) NEMESIS Directional Infrared Countermeasures System which consists of three small laser turret assemblies, six missile warning sensors, one system processor, one control indicator unit, two signal repeaters, included associated support equipment, spare and repair parts, publications, personnel training and training equipment, technical assistance, contractor technical and logistics personnel services and other related elements of program support.

- **June 26, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Bahrain of a 3 dimensional radar and associated equipment and services. The total value, if all options are exercised, could be as high as \$40 Million.

The Government of Bahrain has requested a possible sale of one AN/TPS-59(V)3 3-dimensional land based radar, one Air Defense Communication Platform, spare and repair parts, publications, personnel training and training equipment, technical assistance, contractor technical and logistics personnel services and other related elements of program support.

## Iraq

- **Jan 27, 2014**-The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq for support for APACHE lease and associated equipment, parts, training and logistical support for an estimated cost of \$1.37 billion.

The Government of Iraq has requested a possible sale of 8 AN/AAR-57 Common Missile Warning System, 3 T-700-GE-701D engines, 3 AN/ASQ-170 Modernized Target Acquisition and Designation Sight (MTADS), 3 AN/AAQ-11 Modernized Pilot Night Vision Sensors (PNVS), 152 AGM-114 K-A HELLFIRE Missiles, 14 HELLFIRE M299 Launchers, 6 AN/APR-39A(V)4 Radar Warning Systems with training Universal Data Modems (UDM), 2 Embedded Global Positioning System Inertial Navigation System (EGI), 6 AN/AVR-2A/B Laser Warning Detectors, 12 M261 2.75 inch Rocket Launchers, M206 Infrared Countermeasure flares, M211 and M212 Advanced Infrared Countermeasure Munitions (AIRCM) flares, Internal Auxiliary Fuel Systems (IAFS), Aviator's Night Vision Goggles, Aviation Mission Planning System, training ammunition, helmets, transportation, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is \$1.37 billion.

- **Jan 27, 2014**-The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq for AH-64E APACHE LONGBOW Attack Helicopters and associated equipment, parts, training and logistical support for an estimated cost of \$4.8 billion.

The Government of Iraq has requested a possible sale of 24 AH-64E APACHE LONGBOW Attack Helicopters, 56 T700-GE-701D Engines, 27 AN/ASQ-170 Modernized Target Acquisition and Designation Sight, 27 AN/AAR-11 Modernized Pilot Night Vision Sensors, 12 AN/APG-78 Fire Control Radars with Radar Electronics Unit (LONGBOW component), 28 AN/AAR-57(V)7 Common Missile Warning Systems,

28 AN/AVR-2B Laser Detecting Sets, 28 AN/APR-39A(V)4 or APR-39C(V)2 Radar Signal Detecting Sets, 28 AN/ALQ-136A(V)5 Radar Jammers, 52 AN/AVS-6, 90 Apache Aviator Integrated Helmets, 60 HELLFIRE Missile Launchers, and 480 AGM-114R HELLFIRE Missiles. Also included are AN/APR-48 Modernized Radar Frequency Interferometers, AN/APX-117 Identification Friend-or-Foe Transponders, Embedded Global Positioning Systems with Inertial Navigation with Multi Mode Receiver, MXF-4027 UHF/VHF Radios, 30mm Automatic Chain Guns, Aircraft Ground Power Units, 2.75 in Hydra Rockets, 30mm rounds, M211 and M212 Advanced Infrared Countermeasure Munitions flares, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. government and contractor engineering, technical, and logistics support services, design and construction, and other related elements of logistics support. The estimated cost is \$4.8 billion.

- **Aug. 5, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq of Mobile Troposcatter Radio Systems and associated equipment, parts, training and logistical support for an estimated cost of \$339 million.

The Government of Iraq has requested a possible sale of 19 Mobile Troposcatter Radio Systems, 10 Mobile Microwave Radio Systems, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is \$339 million.

- **Aug. 5, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq of an Integrated Air Defense System and associated equipment, parts, training and logistical support for an estimated cost of \$2.403 billion.

The Government of Iraq has requested a possible sale of 40 AVENGER Fire Units, 681 STINGER Reprogrammable Micro-Processor (RMP) Block I 92H Missiles, 13 AN/MPQ-64F1 SENTINEL Radars, 7 AN/YSQ-184D Forward Area Air Defense Command, Control, and Intelligence (FAAD C2I) Systems, 75 AN/VRC-92E SINGGARS Radios, 3 HAWK XXI Batteries (6 Fire Units) which include 6 Battery Fire Direction Centers, 6 High Powered Illuminator Radars, 216 MIM-23P HAWK Tactical Missiles, 2 Mobile Battalion Operation Centers (BOC), 3 HAWK XXI BOC Air Defense Consoles (ADCs), 1DS/GS Shop 20, 1 DS/GS Shop 21, 1 Mini-Certified Round Assembly Facility (MCRAF), Air Command and Control (C2) systems and surveillance radars for the Integrated Air Defense Systems that includes TPS-77 Long-Range Radars (LRR) and Omnyx-I0 Air Command and Control System, and 10 Medium Range Radars. Also included: Ground Air Transmit Receive Ultra High Frequency/Very High Frequency radio capability, facilities and construction for one (1) underground Air Defense Operations Center and two (2) Air Defense Sector Operations Centers, spare and repair parts, repair and return, software support, systems integration, long haul communication technical integration, communications equipment, support equipment and sustainment, tools and test equipment, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor representative engineering, technical, and logistics support services, and other related elements of logistics support. The estimated cost is \$2.403 billion.

- **July 25, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq of Multi-Platform Maintenance and associated equipment, parts, training and logistical support for an estimated cost of \$750 million.

The Government of Iraq has requested a possible sale to provide for a five year follow-on maintenance support for the M88A1 Recovery Vehicle, M88A2 Hercules, M113 Family of Vehicles, M109A5 Howitzers, M198 Howitzers, M1070 Heavy Equipment Trailer and Truck (HETT), M977 Heavy Expanded Mobility Tactical Truck (HEMTT), High Mobility Multipurpose Wheeled Vehicle (HMMWV), and the Tactical Floating River Bridge System (TFRBS) Including, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, Quality Assurance Teams, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is \$750 million.

- **July 25, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign

Military Sale to Iraq of 12 Bell 412 EP helicopters and associated equipment, parts, training and logistical support for an estimated cost of \$300 million.

The Government of Iraq has requested a possible sale of 12 Bell 412 EP helicopters equipped with Star SAFIRE III EO/IR systems, PT6T-3DF engines, KDM-706 Distance Measuring Equipment, KNR 634 VOR/LOC with MB/HSI, MST67A Transponder, Artex C406-1HM Emergency Locator Transmitter, Wulfsberg FlexComm II C5000 System with Synthesized Guard, KTR-908 Very High Frequency Radios, NAT AA-95 Audio System, 660 Weather Radar, AAI Radome, Night Vision Imaging System (NVIS) Compatible Cockpit Lighting, SX-16 Nightsun, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is \$300 million.

- **July 25, 2013** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Iraq of 50 M1135 Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicles and associated equipment, parts, training and logistical support for an estimated cost of \$900 million.

The Government of Iraq has requested a possible sale of 50 M1135 Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicles, DECON 3000 Decontamination Systems, M26 Commercial Joint Service Transportable Decontamination Systems (JSTDS), AN/VRC-89 Single Channel Ground and Airborne Radio Systems (SINCGARS) with Global Positioning System (GPS), AN/VRC-90 SINCGARS with GPS, M40A1 Protective Masks, Lightweight Personal Chemical Detectors LCD-3, Portable Chemical Warfare Agent Detectors GID-3, MultiRAE PLUS Gas Detectors, AN/VDR-2 Radiac Sets, M256 Chemical Agent Detector Kits, Decontamination Kits, Chemical Biological Mask Canisters, M8 Chemical Paper Agent Detector Kits, water canteens, individual clothing and equipment, spare and repair parts, support equipment, communication equipment, publications and technical data, personnel training and training equipment, site surveys, a Quality Assurance Team, U.S. Government and contractor technical assistance, and other related elements of program and logistics support. The estimated cost is \$900 million.

- **Feb. 28, 2013** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq for 200 RAPISCAN cargo inspection systems and associated equipment, parts, training and logistical support for an estimated cost of \$600 million. Iraq has requested the possible sale of 90 M45 RAPISCAN Mobile Eagle High Energy Mobile System Vehicles, 40 M60 RAPISCAN Mobile Eagle High Energy Mobile System Vehicles, 70 American Science and Engineering brand Z Backscatter Vans. The Z Backscatter vans will be used to scan vehicle interiors and will provide the Government of Iraq a tool to restrict the ability of insurgent and terrorist groups to operate by detecting contraband movement through borders and checkpoints.
- **Dec. 24, 2012** – The Defense Security Cooperation Agency notified Congress Dec. 21 of a possible Foreign Military Sale to the Government of Iraq for Very Small Aperture Terminal (VSAT) operations and maintenance services and associated equipment, parts, training and logistical support for an estimated cost of \$125 million.

The Government of Iraq has requested a possible sale of Very Small Aperture Terminal (VSAT) operations and maintenance services, equipment installation services, upgrade VSAT managed and leased bandwidth, video teleconferencing equipment, 75 VSAT Equipment Suites (consisting of 1.8m VSAT terminals, block upconverters (BUCs), low-noise down converters (LNBS), required cables and components, iDirect e8350 modem, network operation and dynamic bandwidth equipment, and iMonitor software), spares and repair parts, tools, personnel training and training equipment, publications and technical documentation, U.S. Government and contractor representative technical support services, and other related elements of logistics and program support.

- **Aug. 15, 2012** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq for commercially available Federal Aviation Administration Air Traffic Control and Landing System/Navigational Aids and associated equipment, parts, training and logistical support at an estimated cost of \$60 million.

The Government of Iraq has requested a proposed sale of commercially available Federal Aviation Administration Air Traffic Control and Landing System/Navigational Aids. The system will include an ASR-11 Radar, Autotrac II simulator, Instrument Landing System, and Airfield Lighting System, spare and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, site survey, installation, US Government and contractor engineering and logistics support services, and other related elements of logistics and program support.

- **July 20, 2012** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Government of Iraq for 12 FIREFINDER Radars and associated equipment, parts, training and logistical support for an estimated cost of \$428 million.

The Government of Iraq has requested a possible sale of 6 AN/TPQ-36(V)11 FIREFINDER Radar Systems, 6 AN/TPQ-37(V)9 FIREFINDER Radars, 3 Meteorological Measuring Sets, 86 AN/VRC-92 export variant Single Channel Ground and Airborne Radio Systems, 12 Advanced Field Artillery Tactical Data Systems, 3 Improved Position and Azimuth Determining Systems, 63 M1152A1 and 3 M1151A1 High Mobility Multipurpose Wheeled Vehicles, 12 M1083A1 Family of Medium Tactical Utility Vehicles, government furnished equipment, common hardware and software, communication support equipment, tools and test equipment, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering, logistics, and technical support services, and other related elements of logistics support.

- **Dec. 12, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq for 18 F-16IQ aircraft and associated equipment, parts, weapons, training and logistical support for an estimated cost of \$2.3 billion.

The Government of Iraq has requested a possible sale of 18 F-16IQ aircraft, 24 F100PW-229 or F110-GE-129 Increased Performance Engines, 120 LAU-129/A Common Rail Launchers, 24 APG-68(V)9 radar sets, 19 M61 20mm Vulcan Cannons, 100 AIM-9L/M-8/9 SIDEWINDER Missiles, 150 AIM-7M-F1/H SPARROW Missiles, 50 AGM-65D/G/H/K MAVERICK Air to Ground Missiles, 200 GBU-12 PAVEWAY II Laser Guided Bomb Units (500 pound), 50 GBU-10 PAVEWAY II Laser Guided Bomb Units (2000 pound), 50 GBU-24 PAVEWAY III Laser Guided Bomb Units (2000 pound), 22 ALQ-211 Advanced Integrated Defensive Electronic Warfare Suites (AIDEWS), or Advanced Countermeasures Electronic System (ACES) (ACES includes the ALQ-187 Electronic Warfare System and AN/ALR-93 Radar Warning Receiver), 20 AN/APX-113 Advanced Identification Friend or Foe (AIFF) Systems (without Mode IV), 20 Global Positioning Systems (GPS) and Embedded GPS/ Inertial Navigation Systems (INS), (Standard Positioning Service (SPS) commercial code only), 20 AN/AAQ-33 SNIPER or AN/AAQ-28 LITENING Targeting Pods, 4 F-9120 Advanced Airborne Reconnaissance Systems (AARS) or DB-110 Reconnaissance Pods (RECCE), 22 AN/ALE-47 Countermeasures Dispensing Systems (CMDS), 20 Conformal Fuel Tanks (pairs), 120 Joint Helmet Mounted Cueing Systems (JHMCS), 20 AN/ARC-238 Single Channel Ground and Airborne Radio Systems, 10,000 PGU-27A/B Ammunition, 30,000 PGU-28 Ammunition, 230 MK-84 2000 lb. General Purpose Bombs, and 800 MK-82 500lb General Purpose Bombs. Also included: LAU-117 Maverick Launchers, site survey support equipment, Joint Mission Planning System, Ground Based Flight Simulator, tanker support, ferry services, Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD), repair and return, modification kits, spares and repair parts, construction, publications and technical documentation, personnel training and training equipment, US Government and contractor technical, engineering, and logistics support services, ground based flight simulator, and other related elements of logistics support.

- **June 29, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq for follow-on support and maintenance of multiple aircraft systems and associated equipment, parts, training and logistical support for an estimated cost of \$675 million.

The Government of Iraq has requested a possible sale of follow-on support and maintenance of multiple aircraft systems that include TC-208s, Cessna 172s, AC-208s, T-6As, and King Air 350s. Included are ground stations, repair and return, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering, logistics, and technical support services, and other related elements of logistics support.

- **Oct. 5, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq for various explosive projectiles and charges, as well as associated equipment, parts, training and logistical support for an estimated cost of \$82 million.

The Government of Iraq has requested a possible sale of 44,608 M107 155mm High Explosive Projectiles and 9,328 M485A2 155mm Illumination projectiles; also included are, M231 Propelling charges, M232A1 155mm Modular Artillery Charge System Propelling charges, M739 Fuzes, M762A1 Electronic Time Fuzes, M82 Percussion primers, M767A1 Electronic Time Fuzes, 20-foot Intermodal Containers for transporting ammunition, publications and technical data, personnel training and training equipment, US Government and contractor engineering, logistics, and technical support services, and other related elements of logistics support.

- **May 3, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Iraq of various radios and communication equipment, as well as associated equipment, parts, training and logistical support for an estimated cost of \$67 million.

The Government of Iraq has requested a possible sale of (750) 50-Watt Vehicular Multiband Handheld Radio Systems, (900) 5-watt Multiband Handheld Radio Systems, (50) 50-watt Multiband Handheld Base Station Radio Systems, (50) 20-watt High Frequency (HF) Base Station Radio Systems, (100) 5-watt Secure Personal Role Handheld Radio Systems, accessories, installation, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering and technical support services, and other related elements of logistics support.

- **March 30, 2011** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Government of Iraq of six AN/TPQ-36(V)10 FIREFINDER Radar Systems, 18 AN/TPQ-48 Light Weight Counter-Mortar Radars and associated equipment, parts, training and logistical support for an estimated cost of \$299 million.

The Government of Iraq has requested a possible sale of 6 AN/TPQ-36(V)10 FIREFINDER Radar Systems, 18 AN/TPQ-48 Light Weight Counter-Mortar Radars, 3 Meteorological Measuring Sets, 36 export variant Single Channel Ground and Airborne Radio Systems, 6 Advanced Field Artillery Tactical Data Systems, 3 Position and Azimuth Determining Systems, government furnished equipment, common hardware and software, communication support equipment, tools and test equipment, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering, logistics, and technical support services, and other related elements of logistics support.

- **Nov. 30, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C<sup>4</sup>ISR) Systems and associated parts and equipment for a complete package worth approximately \$68 million.

The Government of Iraq has requested a possible sale for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C<sup>4</sup>ISR) Systems which includes, High Frequency, Ultra High Frequency, and Very High Frequency radios, Automatic Identification System, Surface Scan Radar System, Forward Looking Infrared System, Situational Display System, Mobile and Fixed Towers, Electro-Optical Cameras, Voice Over Internet Protocol, K Under Band Very Small Aperture Terminal upgrades, generators, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering and technical support services, and other related logistical support.

- **Nov. 30, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of M1A1 Abrams Tank Ammunition for an estimated cost of \$36 million.

The Government of Iraq has requested a possible sale of 14,010 TP-T M831A1 120mm Cartridges, 16,110 TPCSDS-T M865 120mm Cartridges, and 3,510 HEAT-MP-T M830A1 120mm Cartridges.

- **Sept. 24, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of contractor technical support of the Iraqi Defense Network and associated parts and equipment



for a complete package worth approximately \$98 million.

- **Sept. 24, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of contractor logistics support for Mobile Communications Centers and associated parts and equipment for a complete package worth approximately \$57 million.
- **Sept. 15, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq for the refurbishment of 440 M113A2 Armored Personnel Carriers as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$131 million.
- **Sept. 15, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 18 F-16IQ Aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$4.2 billion.

The Government of Iraq has requested a possible sale of (18) F-16IQ aircraft, (24) F100-PW-229 or F110-GE-129 Increased Performance Engines, (36) LAU-129/A Common Rail Launchers, (24) APG- 68(V)9 radar sets, (19) M61 20mm Vulcan Cannons, (200) AIM-9L/M-8/9 SIDEWINDER Missiles, (150) AIM-7M-F1/H SPARROW Missiles, (50) AGM-65D/G/H/K MAVERICK Air to Ground Missiles, (200) GBU-12 PAVEWAY II Laser Guided Bomb Units (500 pound), (50) GBU-10 PAVEWAY II Laser Guided Bomb Units (2000 pound), (50) GBU-24 PAVEWAY III Laser Guided Bomb Units (2000 pound), (22) Advanced Countermeasures Electronic Systems (ACES) (ACES includes the ALQ-187 Electronic Warfare System and AN/ALR-93 Radar Warning Receiver), (20) AN/APX-113 Advanced Identification Friend or Foe (AIFF) Systems (without Mode IV), (20) Global Positioning Systems (GPS) and Embedded GPS/Inertial Navigation Systems (INS), (Standard Positioning Service (SPS) commercial code only), (20) AN/AAQ-33 SNIPER or AN/AAQ-28 LITENING Targeting Pods, (4) F-9120 Advanced Airborne Reconnaissance Systems (AARS) or DB- 110 Reconnaissance Pods (RECCE), (22) AN/ALE-47 Countermeasures Dispensing Systems (CMDS); (20) Conformal Fuel Tanks (pairs). Also included: site survey, support equipment, tanker support, ferry services, Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD), repair and return, modification kits, spares and repair parts, construction, publications and technical documentation, personnel training and training equipment, US Government and contractor technical, engineering, and logistics support services, ground based flight simulator, and other related elements of logistics support.

- **Aug. 5, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of contractor logistics support for various helicopters for an estimated cost of \$152 million.

The Government of Iraq has requested a possible sale of two years of contractor logistics support for Mi-17 Helicopters and two years of logistics support for US-origin rotary wing aircraft not in DoD's inventory.

- **March 5, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of various communication equipment, associated parts and logistical support for a complete package worth approximately \$142 million.

The Government of Iraq has requested a possible sale of (300) 50-watt Very High Frequency (VHF) Base Station radios, (230) 50-Watt VHF Vehicular Stations, (150) 20-watt High Frequency/Very High Frequency (HF/VHF) Base Station Systems, (50) 20-watt HF/VHF Vehicular Radios, (50) 50-watt Ultra High Frequency/Very High Frequency (UHF/VHF) Base Stations, (10) 150-watt HF/VHF Vehicular Radio Systems, (10) 150-watt HF Base Station Radio Systems, (30) 20-watt HF Vehicular Mobile Radio Stations, (250) 20-watt HF/VHF Handheld Radio Systems, (300) 50-watt UHF/VHF Vehicular Stations, (10) 150-watt HF/VHF Fixed Base Station Radio Systems, (590) Mobile Communications, Command and Control Center Switches, (4) Mobile Work Shops, High Capacity Line of Sight Communication Systems with Relay Link, generators, accessories, installation, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services, and other related elements of logistics support.

- **Nov. 19, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 15 helicopters with associated parts, equipment, training and logistical support for a complete package worth approximately \$1.2 billion.

The Government of Iraq has requested a possible sale of up to 15 Agusta Westland AW109 Light Utility

Observation helicopters, or alternatively, 15 Bell Model 429 Medical Evacuation and Aerial Observation helicopters, or 15 EADS North America UH-72A Lakota Light Utility helicopters; and, up to 12 Agusta Westland AW139 Medium Utility helicopters, or alternatively, 12 Bell Model 412 Medium Utility helicopters, or 12 Sikorsky UH-60M BLACK HAWK helicopters equipped with 24 T700-GE-701D engines. Also included: spare and repair parts, publications and technical data, support equipment, personnel training and training equipment, ground support, communications equipment, US Government and contractor provided technical and logistics support services, tools and test equipment, and other related elements of logistics support.

- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of (64) Deployable Rapid Assembly Shelters (DRASH), (1,500) 50 watt Very High Frequency (VHF) Base Station Radios, (6,000) VHF Tactical Handheld Radios, (100) VHF Fixed Retransmitters, (200) VHF Vehicular Radios, (30) VHF Maritime 50 watt Base Stations, (150) 150 watt High Frequency (HF) Base Station Radio Systems, (150) 20 watt HF Vehicular Radios, (30) 20 watt HF Manpack Radios, (50) 50 watt Very High Frequency/Ultra High Frequency (VHF/UHF) Ground to Air Radio Systems, (50) 150 watt VHF/UHF Ground to Air Radio Systems, (50) 5 watt Multiband Handheld Radio Systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$485 Million.
- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of (80,000) M16A4 5.56MM Rifles, (25,000) M4 5.56MM Carbines, (2,550) M203 40MM Grenade Launchers as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$148 million.
- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 26 Bell Armed 407 Helicopters, 26 Rolls Royce 250-C-30 Engines, 26 M280 2.75-inch Launchers, 26 XM296 .50 Cal. Machine Guns with 500 Round Ammunition Box, 26 M299 HELLFIRE Guided Missile Launchers as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$366 million.
- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 140 M1A1 Abrams tanks modified and upgraded to the M1A1M Abrams configuration, 8 M88A2 Tank Recovery Vehicles, 64 M1151A1B1 Armored High Mobility Multi-Purpose Wheeled Vehicles (HMMWV), 92 M1152 Shelter Carriers, 12 M577A2 Command Post Carriers, 16 M548A1 Tracked Logistics Vehicles, 8 M113A2 Armored Ambulances, and 420 AN/VRC-92 Vehicular Receiver Transmitters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$2.160 billion.
- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of (20) 30-35meter Coastal Patrol Boats and (3) 55- 60 meter Offshore Support Vessels as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.010 billion.

The Government of Iraq has requested a possible sale of (20) 30-35meter Coastal Patrol Boats and (3) 55-60 meter Offshore Support Vessels, each outfitted with the Seahawk MS1-DS30MA2 mount using a 30 x 173mm CHAIN gun and short range Browning M2-HB .50 cal machine gun, spare and repair parts, weapon system software, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 20 T-6A Texan aircraft, 20 Global Positioning Systems (GPS) as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$210 million.

The Government of Iraq has requested a possible sale of 20 T-6A Texan aircraft, 20 Global Positioning Systems (GPS) with CMA-4124 GNSSA card and Embedded GPS/Inertial Navigation System (INS) spares, ferry maintenance, tanker support, aircraft ferry services, site survey, unit level trainer, spare and repair parts, support and test equipment, publications and technical documentation, personnel training and training

equipment, contractor technical and logistics personnel services, and other related elements of logistics support.

- **Dec. 10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 400 M1126 STRYKER Infantry Carrier Vehicles as well as associated equipment. The total value, if all options are exercised, could be as high as \$1.11 billion.

The Government of Iraq has requested a possible sale of 400 M1126 STRYKER Infantry Carrier Vehicles (ICVs), 400 M2 HB 50 cal Browning Machine Guns, 400 M1117 Armored Security Vehicles (ASVs), 8 Heavy Duty Recovery Trucks, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services, and other related elements of logistics support.

- **Dec.10, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of 36 AT-6B Texan II Aircraft as well as associated support. The total value, if all options are exercised, could be as high as \$520 million.

The Government of Iraq has requested a possible sale of 36 AT-6B Texan II Aircraft, 6 spare PT- 6 engines, 10 spare ALE-47 Counter-Measure Dispensing Systems and/or 10 spare AAR-60 Missile Launch Detection Systems, global positioning systems with CMA-4124, spare and repair parts, maintenance, support equipment, publications and technical documentation, tanker support, ferry services, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **July 31, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of M1A1 and Upgrade to M1A1M Abrams Tanks as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$2.16 billion.

The Government of Iraq has requested a possible sale of 140 M1A1 Abrams tanks modified and upgraded to the M1A1M Abrams configuration, 8 M88A2 Tank Recovery Vehicles, 64 M1151A1B1 Armored High Mobility Multi-Purpose Wheeled Vehicles (HMMWV), 92 M1152 Shelter Carriers, 12 M577A2 Command Post Carriers, 16 M548A1 Tracked Logistics Vehicles, 8 M113A2 Armored Ambulances, and 420 AN/VRC-92 Vehicular Receiver Transmitters. Also included are: 35 M1070 Heavy Equipment Transporter (HET) Truck Tractors, 40 M978A2 Heavy Expanded Mobility Tactical Truck (HEMTT) Tankers, 36 M985A2 HEMTT Cargo Trucks, 4 M984A2 HEMTT Wrecker Trucks, 140 M1085A1 5-ton Cargo Trucks, 8 HMMWV Ambulances w/ Shelter, 8 Contact Maintenance Trucks, 32 500 gal Water Tank Trailers, 16 2500 gal Water Tank Trucks, 16 Motorcycles, 80 8 ton Heavy/Medium Trailers, 16 Sedans, 92 M1102 Light Tactical trailers, 92 635NL Semi-Trailers, 4 5,500 lb. Rough Terrain Forklifts, 20 M1A1 engines, 20 M1A1 Full Up Power Packs, 3 spare M88A2 engines, 10 M1070 engines, 20 HEMTT engines, 4 M577A2 spare engines, 2 5-ton truck engines, 20 spare HMMWV engines, ammunition, spare and repair parts, maintenance, support equipment, publications and documentation, personnel training and equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **July 30, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of Helicopters and related munitions as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$2.4 billion.

The Government of Iraq has requested a possible sale of 24 Bell Armed 407 Helicopters or 24 Boeing AH-6 Helicopters, 24 Rolls Royce 250-C-30 Engines, 565 M120 120mm Mortars, 665 M252 81mm Mortars, 200 AGM-114M HELLFIRE missiles, 24 M299 HELLFIRE Guided Missile Launchers, 16 M36 HELLFIRE Training Missiles, 15,000 2.75-inch Rockets, 24 M280 2.75-inch Launchers, 24 XM296 .50 Cal. Machine Guns with 500 Round Ammunition Box, 24 M134 7.62mm Mini-Guns, 81mm ammunition, 120mm ammunition, test measurement and diagnostics equipment, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, US Government and contractor engineering and logistics personnel services, and other related elements of logistics support.

- **July 30, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of technical assistance for construction of facilities and infrastructure as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.6 billion.

The Government of Iraq has requested a possible sale of technical assistance to ensure provision of adequate facilities and infrastructure in support of the recruitment, garrison, training, and operational facilities and infrastructure for the Iraqi Security Forces (ISF). The US Army Corps of Engineers (USACE) will provide engineering, planning, design, acquisition, contract administration, construction management, and other technical services for construction of facilities and infrastructure (repair, rehabilitation, and new construction) in support of the training, garrison, and operational requirements of the ISF. The scope of the program includes provision of technical assistance for Light Armored Vehicles, Range Facilities, Training Facilities, Tank Range Complex Facilities, and Armed Reconnaissance Helicopter Facilities in support of Government of Iraq (GoI) construction projects throughout the country of Iraq. The facilities and infrastructure planned include mission essential facilities, maintenance and supply buildings, company and regimental headquarters, and utilities systems (including heating, water, sewer, electricity, and communication lines). Services include support, personnel training and training equipment, acquisition of engineer construction equipment, technical assistance to Iraqi military engineers, other technical assistance, contractor engineering services, and other related elements of logistic support.

- **July 30, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of Light Armored Vehicles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$3 billion.

The Government of Iraq has requested a possible sale of 392 Light Armored Vehicles (LAVs) which include 352 LAV-25, 24 LAV-CC, and 16 LAV-A (Ambulances); 368 AN/VRC-90E Single Channel Ground and Airborne Radio Systems (SINCGARS); 24 AN/VRC-92E SINCGARS; and 26 M72 Light Anti-Tank Weapons. The following are considered replacements to vehicles/weapons requested in the Military Table of Equipment (MTOE): 5 LAV-R (Recovery), 4 LAV-L (Logistics), 2 Mine Resistant Ambush Protected (MRAP) Vehicles, 41 Medium Tactical Vehicle Replacement (MTVR), 2 MK19 40mm Grenade Machine Guns, 773 9mm Pistols, 93 M240G Machine Guns, and 10 AR-12 rifles. Non-MDE includes ammunition, construction, site survey, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services and other related elements of logistics support.

- **July 28, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of Armored Security Vehicles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$206 million.

The Government of Iraq has requested a possible sale of 160 M2 .50 caliber Machine Guns, 160 M117 Armored Security Vehicles (ASVs), 4 Heavy Duty Recovery Trucks, 160 Harris Vehicular Radio Systems, 144 MK19 MOD3 40mm Grenade Machine Guns with Bracket, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services, and other related elements of logistics support.

- **July 25, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of C-130J-30 Aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.5 billion.

The Government of Iraq has requested a possible sale of 6 C-130J-30 United States Air Force baseline aircraft and equipment, 24 Rolls Royce AE 2100D3 engines, 4 Rolls Royce AE 2100D3 spare engines, 6 AAR-47 Missile Warning Systems, 2 spare AAR-47 Missile Warning Systems, 6 AN/ALE-47 Countermeasures Dispensing Systems, 2 spare AN/ALE-47 Countermeasures Dispensing Systems. Also included are spare and repair parts, configuration updates, integration studies, support equipment, publications and technical documentation, technical services, personnel training and training equipment, foreign liaison office support, US Government and contractor engineering and logistics personnel services, construction, and other related elements of logistics support.

- **May 7, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of technical assistance for construction of facilities and infrastructure as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$450 million.
- **March 21, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of various vehicles, small arms and ammunition, communication equipment, medical

equipment, and clothing and individual equipment as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1,389 million.

The Government of Iraq has requested a possible sale of (700) M1151 High Mobility Multi-Purpose Wheeled Vehicles (HMMWV) Armored Gun Trucks, (4,000) AN/PVS-7D Night Vision Devices, and (100,000) M16A4 Assault Rifles. Also included are: (200) Commercial Ambulances, (16) Bulldozers, (300) Light Gun Trucks, (150) Motorcycles, (90) Recovery Trucks, (30) 20 ton Heavy Trailer, (1,400) 8 ton Medium Trailers, (3,000) 4X4 Utility Trucks, (120) 12K Fuel Tank Trucks, (80) Heavy Tractor Trucks, (120) 10K Water Tank Trucks, (208) 8 ton Heavy Trucks, (800) Light Utility Trailers, (8) Cranes, (60) Heavy Recovery Vehicles, (16) Loaders, (300) Sedans, (200) 500 gal Water Tank Trailers, (1,500) 1 ton Light Utility Trailers, (50) 40 ton Low Bed Trailers, (40) Heavy Fuel Tanker Trucks, (20) 2000 gal Water Tanker Trucks, (2,000) 5 ton Medium Trucks, (120) Armored IEDD Response Vehicles, (1,200) 8 ton Medium Cargo Trucks, (1,100) 40mm Grenade Launchers, (3,300) 9mm Pistols with Holsters, (400) Aiming Posts, (140,000) M16A4 Magazines, (100,000) M4 Weapons, (65) 5K Generators, (5,400) hand-held VHF radio sets, (3,500) vehicular VHF radio sets, (32) Air Conditioner Charger kits, (32) Air Conditioner Testers, (4,000) binoculars, (20) electrician tool kits, (600) large general purpose tents, (700) small command general purpose tents, medical equipment, organizational clothing and individual equipment, standard and non-standard vehicle spare and repair parts, maintenance, support equipment, publications and documentation, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Sept. 25, 2007** - The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of various vehicles, small arms ammunition, explosives, and communications equipment as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$2.257 billion.

The Government of Iraq has requested a possible sale of the following: MDE includes: (980) M1151 High Mobility Multi-Purpose Wheeled Vehicles (HMMWV) and (123,544) M16A4 Rifles.

Also included are: Upgrade and refurbishment of 32 additional UH-I configuration; Armored Land Cruisers (189); Armored Mercedes (10); Light utility trucks (1,815); Fire trucks (70); Fuel trucks (40); Septic truck (20); Water truck (45); Motorcycles (112); Sedans (1,425); 5 Ton Trucks (600); Medium Trucks (600); BTR 3E1 (336); 8 Ton Trucks (400); 12 Ton Trucks (400); 16- 35 Ton Trucks (100); 35 Ton Trucks (20); Ambulances (122); Bulldozers (33); Excavators (10); Wheeled Loader (20); Variable Reach Forklifts (10); 5Kw generators (447); ILAV Route Clearing Vehicle (55); Wrecker w/Boom (19); Fuel Pumps (34); 11 Passenger Bus (127); 24 Passenger Bus (207); 44 Passenger Bus (80); Contact Maintenance Trucks (105); communication towers, troposcatter and Microwave radios, IDN, DPN, VSAT Operations and Maintenance, (1,518) VHF Wheeled Tactical and Base Station Radios, (4,800) VHF hand-held radios, (6,490) VHF man pack radios, clothing and individual equipment, standard and non-standard vehicle spare and repair parts, maintenance, support equipment, publications and documentation; personnel training and training equipment; Quality Assurance Team support services, US Government and contractor engineering and logistics support services, preparation of aircraft for shipment, and other related elements of logistics support.

- **Sept. 21, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of logistics support for three C-130E aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$172 million.

The Government of Iraq has requested a possible sale of logistics support for three C-130E aircraft to include supply and maintenance support, flares, electronic warfare support, software upgrades, pyrotechnics, spare and repair parts, support equipment, publications and documentation, personnel training and training equipment, fuel and fueling services, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Aug. 17, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of UH-I HUEY repair parts as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$150 million.
- **May 24, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of medical supplies, equipment, and training as well as associated support equipment and

services. The total value, if all options are exercised, will be less than \$1.05 billion.

- **May 18, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of Technical Assistance for Construction of Facilities and Infrastructure as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$350 million.
- **May 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of various small arms ammunition, explosives, and other consumables as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$508 million.
- **Dec. 07, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq to provide funds for Trucks, Vehicles, Trailers, as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$463 million.

Major Defense Equipment (MDE): 522 High Mobility Multipurpose Wheeled Vehicles (HMMWVs) or 276 Infantry Light Armored Vehicles (I-LA Vs), eight Heavy Tracked Recovery Vehicles – either Brem Tracked Recovery and Repair or M578 Recovery Vehicles, six 40-Ton Trailer Lowboy – either M871 or Commercial, 66 8-Ton Cargo Heavy Trucks – either M900 series or M35 series or MK23 Medium Tactical Vehicles or Commercial Medium Trucks.

Also included: logistics support services/equipment for vehicles (Armored Gun Trucks; Light, Medium, and Heavy Vehicles; trailers; recovery vehicles; and ambulances) supply and maintenance support, measuring and hand tools for ground systems, technical support, software upgrades, spare and repair parts, support equipment, publications and documentation, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Sept. 27, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of King Air 350ER and potentially other aircraft, as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$900 million.

The Government of Iraq has requested a possible sale of:

- 24 King Air 350ER for Intelligence/Surveillance/Reconnaissance role with L-3 Wescam
- MX-15 Electro Optics/Infrared (EO/IR) system, plus 1 of the following Synthetic Aperture Radar (SAR/ISAR)/Inverse Synthetic: APS-134 Sea Vue or APS-143 Ocean Eye or RDR-1700 or Lynx II (APY-8) or APS144 or APY-12 Phoenix
- 24 Data Link Systems (T-Series Model-U or T-Series Model-N or ADL850 or TCDL or BMT-85)
- 24 King Air 350ER or PZL M-18 Skytruck Aircraft for light transport role
- 48 AAR-47 Missile Warning Systems
- 48 ALE-47 Countermeasures Dispensing Systems
- 6,000 M-206 Flare Cartridges
- 50 Global Positioning System (GPS) and Embedded GPS/Inertial Navigation Systems (INS)

Also included: support equipment, management support, spare and repair parts, supply support, training, personnel training and training equipment, publications and technical data, US Government and contractor technical assistance and other related elements of logistics support.

- **Sept. 27, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of one AN/FPS-117 or TPS-77 Long Range Air Traffic Control Radar, as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$142 million.

The Government of Iraq has requested a possible sale of one AN/FPS-117 or TPS-77 Long Range Air Traffic Control Radar, support equipment, management support, spare and repair parts, supply support, training, publications and technical data, US Government and contractor technical assistance and other related elements of logistics support.

- **Sept. 19, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of helicopters, vehicles, weapons and support as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$500 million.

Also included: logistics support services/equipment for helicopters (Jet Ranger, Huey II and Mi-17) and vehicles (Standard/Non-Standard Wheeled Vehicles, Tracked Vehicles, Infantry Light Armored Vehicles Armored Personnel Carriers) and small/medium weapons and weapon systems, on-job-training, laser pointers, supply and maintenance support, measuring and hand tools for ground systems, technical support, software upgrades, spare and repair parts, support equipment, publications and documentation, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Sept. 19, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of logistics support for Helicopters, Vehicles, Weapons as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$250 million.

The Government of Iraq has requested a possible sale of logistics support services/equipment for helicopters (Jet Ranger, Huey II and Mi-17) and vehicles (Standard/Non-Standard Wheeled Vehicles, Tracked Vehicles, Infantry Light Armored Vehicles Armored Personnel Carriers) and small/medium weapons and weapon systems including on-job-training, supply and maintenance support, measuring and hand tools for ground systems, software upgrades, spare and repair parts, support equipment, publications and documentation, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **March 10, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Iraq of six T-56A-7 engines and logistics support for C-130 aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$132 million.

The Government of Iraq has requested a possible sale of six T-56A-7 engines and logistics support for C-130 aircraft to include supply and maintenance support, flares, software upgrades, pyrotechnics, spare and repair parts, support equipment, publications and documentation, personnel training and training equipment, fuel and fueling services, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

## Kuwait

- **Dec. 5, 2013**- The Defense Security Cooperation Agency notified Congress on Dec 4 of a possible Foreign Military Sale to the Government of Kuwait for F/A-18 C/D follow-on contractor engineering technical services and associated equipment, parts, and logistical support for an estimated cost of \$150 million.

The Government of Kuwait requests the continuation of contractor engineering technical services, contractor maintenance services, Hush House support services, and Liaison Office Support for the Kuwait's Air Force's F/A-18 C/D program, which will include spare and repair parts, publications and technical documentation, U.S. Government and contractor technical support services and other related elements of logistics support. The estimated cost is \$150 million.

- **Jun. 10, 2013** – The Defense Security Cooperation Agency notified Congress June 7 of a possible Foreign Military Sale to Kuwait of technical and logistics support for F/A-18 C/D aircraft for an estimated cost of \$200 million.

The Government of Kuwait has requested a possible sale of continuation of logistics support, contractor maintenance, and technical services in support of the F/A-18 C/D aircraft to include avionics software upgrade, engine component improvement, ground support equipment, spare and repair parts, publications and technical documentation, engineering change proposals, U.S. Government and contractor technical and logistics support services and other related elements of logistical support. The estimated cost is \$200 million.

- **Apr. 17, 2013** – The Defense Security Cooperation Agency notified Congress 6 of a possible Foreign Military Sale to Kuwait for 1 C-17 GLOBEMASTER III aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$371 million.

The Government of Kuwait has requested a possible sale of 1 C-17 GLOBEMASTER III aircraft, 4 Turbofan F117-PW-100 Engines, 1 AN/AAR-47 Missile Approach Warning System, 1 AN/ALE-47 Countermeasure Dispenser Set (CMDS), secure radios, precision navigation equipment, spare and repair parts, support and test equipment, publications and technical documentation, tactics manuals, personnel training and training equipment, U.S. Government and contractor engineering, aircraft ferry support, aircraft fuel, and technical and logistics support services; and related elements of initial and follow-on logistical and program support.

- **Jul. 20, 2012** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Government of Kuwait for 60 PATRIOT Advanced Capability (PAC-3) Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$4.2 billion.

The Government of Kuwait has requested a possible sale of 60 PATRIOT Advanced Capability (PAC-3) Missiles, 4 PATRIOT radars, 4 PATRIOT Engagement Control Stations, 20 PATRIOT Launching Stations, 2 Information Coordination Centrals, 10 Electric Power Plants, communication and power equipment, personnel training and training equipment, spare and repair parts, facility design and construction, publications and technical documentation, US Government and contractor technical and logistics personnel services and other related elements of program and logistics support.

- **Jul. 12, 2012** – The Defense Security Cooperation Agency notified Congress July 10 of a possible Foreign Military Sale to the Government of Kuwait for continuing logistics support, training, depot-level repair services and associated equipment, parts and logistical support for an estimated cost of \$200 million.

The Government of Kuwait has requested a possible sale for continuing logistics support, training, depot-level repair services, and technical services in support of AH-64D APACHE helicopters, publications and technical documentation, US Government and contractor technical and logistics personnel services and other related elements of program and logistics support.

- **Jun. 28, 2012** – The Defense Security Cooperation Agency notified Congress June 26 of a possible Foreign Military Sale to the Government Kuwait of 43 Joint Helmet Mounted Cueing System Cockpit Units and associated equipment and support. The estimated cost is \$51 million.

The Government of Kuwait has requested a possible sale of 43 Joint Helmet Mounted Cueing System Cockpit Units, Single Seat Electronic Units, Helmet Display Units, spare and repair parts, support equipment, tool and test equipment, personnel training and training equipment, publications and technical data, US Government and contractor technical and logistics personnel services and other related elements of program and logistics support.

- **Jun. 28, 2012** – The Defense Security Cooperation Agency notified Congress June 26 of a possible Foreign Military Sale to the Government Kuwait of 300 AGM-114R3 HELLFIRE II missiles and associated equipment and support. The estimated cost is \$49 million.

The Government of Kuwait has requested a possible sale 300 AGM-114R3 HELLFIRE II missiles, containers, spare and repair parts, support and test equipment, repair and return support, training equipment and personnel training, US Government and contractor logistics, Quality Assurance Team support services, engineering and technical support, and other related elements of program support.

- **Feb. 24, 2012** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of 80 AIM-9X-2 SIDEWINDER Block II All-Up-Round Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$105 million.
- **Nov. 8, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Kuwait for continuing logistics support, contractor maintenance, and technical services in support of the F/A-18 aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$100 million.
- **Sept. 24, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of one Boeing C-17 GLOBEMASTER III aircraft and associated parts, equipment and logistics support for a complete package worth approximately \$693 million.



The Government of Kuwait has requested a possible sale of one Boeing C-17 GLOBEMASTER III aircraft, four Turbofan F117-PW-100 engines installed on the aircraft, one spare Turbofan F117-PW-100 engine, one AN/ALE-47 Counter-Measures Dispensing System (CMDS), one AN/AAR-47 Missile Warning System, aircraft ferry services, refueling support, precision navigation equipment, spare and repairs parts, support, personnel training and training equipment, publications and technical data, US Government and contractor engineering, technical, and logistics support services, and other related elements of logistics support. The estimated cost is \$693 million.

- **Aug. 11, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of 209 MIM-104E PATRIOT Guidance Enhanced Missile-T (GEM-T) Missiles for an estimated cost of \$900 million.
- **Nov. 23, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait for the design and construction of facilities and infrastructure for Al Mubarak Air Base and the Kuwait Air Force Headquarters Complex for an estimated cost of \$700 million.
- **Dec. 18, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of construction support services to provide administrative, operational, storage, support facilities and utility infrastructure for the 26<sup>th</sup> Al Soor Brigade facilities for a complete package worth approximately \$360 million.
- **Nov. 16, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the government of Kuwait of four-year PATRIOT Air Defense System sustainment and repair/return programs and associated spare parts, equipment and logistical support worth approximately \$410 million.
- **July 20, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Kuwait of eight KC-130J Multi-mission Cargo Refueling Aircraft and associated equipment, parts and support for an estimated cost of \$1.8 billion.

The Government of Kuwait has requested a possible sale of 8 KC-130J Multi-mission Cargo Refueling Aircraft with 32 AE-2100D3 Turbo propeller engines, 8 spare AE-2100D3 Turbo propeller engines, 4 AN/ALR-56M Radar Warning Receivers, 4 AN/AAR-47 Missile Approach Warning Systems, 4 AN/ALE-47 Countermeasures Dispenser Sets, 20 AN/ARC-210 (RT-1851A(U)) Very High Frequency/Ultra High Frequency HAVEQUICK/Single Channel Ground and Airborne Radio Systems, spare and repair parts, support equipment, publications and technical documentation, warranties, aircraft ferry support, personnel training and training equipment, US Government and contractor technical and logistics personnel services and other related elements of program support.

- **July 14, 2009** – The Defense Security Cooperation Agency (DSCA) notified Congress of a possible Foreign Military Sale to the Government Kuwait of logistics support, contractor maintenance and technical services in support of the F/A-18 aircraft. The estimated cost is \$70 million.
- **July 14, 2009** – The Defense Security Cooperation Agency (DSCA) notified Congress of a possible Foreign Military Sale to the Government of Kuwait of four M2 .50 cal HB Browning machine guns, two Swiftship Model 176DSV0702, 54X9.2X1.8 meter Nautilus Class Diver Support Vessels outfitted with a MLG 27mm gun system, and other related services and equipment. The estimated cost is \$81 million.
- **July 10, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Kuwait to upgrade the Desert Warrior Fire Control System with Gunner's Integrated TOW System (GITS II) worth an estimated \$314 million.

The Government of Kuwait has requested a possible sale to upgrade the Desert Warrior Fire Control System with Gunner's Integrated TOW System (GITS II) hardware. The proposed sale includes installation of the Improved Thermal Sight System 2<sup>nd</sup> Generation Forward-Looking Infrared Radar, spare and repair parts, support equipment, publications and technical documentation, test equipment, personnel training and training equipment, US Government and contractor technical and logistics personnel services and other related elements of program support.

- **July 7, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Kuwait of continuing logistics support, contractor maintenance, and technical

services in support of F/A-18 aircraft worth an estimated \$95 million.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of AIM-120C-7 AMRAAM Missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$178 million.

The Government of Kuwait has requested a possible sale of 120 AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM), 78 LAU-127-B/A Launchers, 78 LAU-127-C/A Launchers, Captive Air Training Missiles, missile containers, spare and repair parts, support and test equipment, publications and technical documentation, personnel training and training equipment, US Government (USG) and contractor engineering, technical and logistics support services, and other related elements of logistical and program support.

- **Jan. 3, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of TOW-2A/B Radio Frequency Missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$328 million.

The Government of Kuwait has requested a possible sale of 2,106 TOW-2A Radio Frequency missiles, 21 Buy-to-Fly missiles, 1,404 TOW-2B Radio Frequency missiles, 14 Buy-to-Fly missiles, containers, spare and repair parts, supply support, publications and technical data, US Government and contractor technical and logistics personnel services, and other related elements of program support.

- **Dec. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of PAC-3 missiles, PAC-2 missile upgrades to GEM-T, and PATRIOT ground support equipment upgrades as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.363 billion.

The Government of Kuwait has requested a possible sale of 80 PAC-3 Missiles, PATRIOT GEM-T Modification Kits to upgrade 60 PAC-2 missiles, 6 PATRIOT System Configuration 3 Modification kits to upgrade PATRIOT Radars to REP III, communication support equipment, tools and test equipment, system integration and checkout, installation, personnel training, containers, spare and repair parts, publications and technical data, US Government and contractor technical and logistics personnel services, and other related elements of program support.

- **Nov. 9, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of technical/logistics support for F/A-18 aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$90 million.
- **Oct. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait to upgrade three L-100-30 aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$250 million.

The Government of Kuwait has requested a possible sale to upgrade three L-100-30 aircraft (a commercial version of the C-130 aircraft), to include modifications, spare and repair parts, support equipment, publications and technical data, flight engineer training, communications equipment, maintenance, personnel training and training equipment, US Government and contractor engineering and logistics support services, preparation of aircraft for shipment, and other related elements of logistics support.

- **Nov. 17, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of 12 MKV-C Fast Interceptor Boats as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$175 million.

The Government of Kuwait has requested a possible sale of 12 MKV-C Fast Interceptor Boats including installed Hull, Mechanical and Electrical systems, 12 RWM GMBH MLG-27mm Mauser Lightweight Gun Systems, communications, technical ground support equipment, spare and repair parts, supply support, publications and technical data, US Government and contractor technical and logistics support services and other related elements of program support.

- **Aug. 22, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of continuing logistics support, contractor maintenance, and technical services in support of

the F/A-18 aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$295 million.

The Government of Kuwait has requested a possible sale of continuing logistics support, contractor maintenance, and technical services in support of the F/A-18 aircraft to include contractor engineering technical services, contractor maintenance support, avionics software, engine component improvement and spare parts, technical ground support equipment, spare and repair parts, supply support, publications and technical data, engineering change proposals, US Government and contractor technical and logistics personnel services, and other related elements of program support.

- **Aug. 4, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of 436 TOW-2A/B Anti-armor Guided Missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$19 million.

The Government of Kuwait has requested a possible sale of 288 TOW-2A missiles, 4 TOW-2A Fly-to-Buy missiles, 140 TOW-2B missiles, and 4 TOW-2B Fly-to-Buy missiles. Also included are spare and repair parts, supply support, publications and technical data, engineering change proposals, US Government and contractor technical and logistics personnel services and other related elements of program support.

- **Oct. 11, 2002** – the Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of an Aerostat Radar System as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$131 million.

The Government of Kuwait has requested a possible sale to replace its Aerostat radar system with the Aerostat balloon/radar system comprised of the 71M Low Altitude Surveillance System (LASS) Balloon with a non-MDE version of the AN/TPS-63 radar. Also included in the proposed sale are: Interim AN/TPS-63 radar components, spare LASS balloon, AN/TPS-63 radar component (Tether Up), miscellaneous commercial vehicles, spare and repair parts, supply support, publications and technical documentation, personnel training and training equipment, US Government and contractor technical assistance and other related elements of logistics support.

- **June 4, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of AIM 120C AMRAAM air-to-air missiles and associated equipment and services. The total value, if all options are exercised, could be as high as \$58 Million.

The Government of Kuwait has requested a possible sale of 80 AIM-120C Advanced Medium Range Air-to-Air Missiles (AMRAAM), 60 AIM-120C Launch Rails, two Captive Air Training Missiles, flight test instrumentation, software updates to support AMRAAM operational and training devices, missile containers, aircraft modification and integration, spare and repair parts, support and test equipment, publications and technical documentation, maintenance and pilot training, contractor support, other related elements of logistical and program support.

- **April 17, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Kuwait of AH-64D Apache Helicopters and associated equipment and services. The total value, if all options are exercised, could be as high as \$2.1 Billion.

The Government of Kuwait has requested a possible sale of 16 AH-64D Apache attack helicopters, four (4) spare T-700-GE -701C engines with gas generator first state 401C turbine blades, four (4) spare M299 HELLFIRE launchers, 96 Longbow HELLFIRE AGM-114L3 and 288 HELLFIRE AGM-114K3 missiles, 16 dummy missiles, 16 Modernized Targeting Acquisition and Designation Systems, eight (8) AN/APG-78 Longbow Fire Control Radar, 30mm cartridges, 2.75-inch rockets, ammunition, spare and repair parts, communications equipment, support equipment, simulators, quality assurance teams, chemical masks, tools and test sets, chaff dispensers, Integrated Helmet and Display Sight Systems, electronic equipment, test facility spares, publications, Quality Assurance Teams, personnel training and training equipment, US Government and contractor technical support and other related elements of logistics support.

## Oman

- **May 15, 2013** – The Defense Security Cooperation Agency notified Congress May 14 of a possible Foreign Military Sale to Oman for two AN/AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) Systems and associated equipment, parts, training and logistical support for an estimated cost of \$100 million.

The Government of Oman has requested a possible sale of 2 AN/AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) Systems (1 B747-400 and 1 B747-800), 11 Small Laser Transmitter Assemblies, 3 System Processors/Repeaters, 14 AN/AAR-54 Missile Warning Sensors, User Data Module Cards and Control Interface Units, Multi-role Electro-Optic End-to-End test set, Card Memory, Smart Cards, and Support Equipment, Consumables, and Flight Test/Certification. Also included are tools and test equipment, support equipment, spare and repair parts, publications and technical documents, personnel training and training equipment, U.S. Government and contractor technical assistance, and other related elements of logistics and program support. The estimated cost is \$100 million.

- **Dec. 12, 2012** – The Defense Security Cooperation Agency notified Congress Dec. 11 of a possible Foreign Military Sale to Oman for a number of F-16 A/C weapon systems, as well as associated equipment, parts, training and logistical support for an estimated cost of \$117 million.

The Sultanate of Oman has requested a possible sale of 27 AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM), 162 GBU-12 PAVEWAY II 500-lb Laser Guided Bombs, 162 FMU-152 bomb fuzes, 150 BLU-111B/B 500-lb Conical Fin General Purpose Bombs (Freefall Tail), 60 BLU-111B/B 500-lb Retarded Fin General Purpose Bombs (Ballute Tail), and 32 CBU-105 Wind Corrected Munitions Dispensers (WCMD). Also included are 20mm projectiles, Aerial Gunnery Target System (AGTS-36), training munitions, flares, chaff, containers, impulse cartridges, weapon support equipment and components, repair and return, spare and repair parts, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor representative logistics and technical support services, site survey, and other related elements of logistics support.

- **Nov. 19, 2012** – The Defense Security Cooperation Agency notified Congress November 15 of a possible Foreign Military Sale to the Government of Oman for 400 Javelin Guided Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$96 million.

The Sultanate of Oman has requested a possible sale of 400 Javelin Guided Missiles, Javelin Weapon Effects Simulator (JAVWES), containers, spare and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, U.S. Government and contractor representative logistics and technical support services, and other related elements of logistics and program support.

- **Jun. 13, 2012** – The Defense Security Cooperation Agency notified Congress on June 12 of a possible Foreign Military Sale to the Government of Oman for 55 AIM-9X Block II SIDEWINDER All-Up Round Missiles, 36 AIM-9X Block II SIDEWINDER Captive Air Training Missiles, 6 AIM-9X Block II Tactical Guidance Units, 4 AIM-9X Block II Captive Air Training Missile Guidance Units, 1 Dummy Air Training Missile, and other related equipment. The estimated cost is \$86 million.

The Government of Oman has requested a possible sale of 55 AIM-9X Block II SIDEWINDER All-Up-Round Missiles, 36 AIM-9X Block II SIDEWINDER Captive Air Training Missiles, 6 AIM-9X Block II Tactical Guidance Units, 4 AIM-9X Block II Captive Air Training Missile Guidance Units, 1 Dummy Air Training Missile, containers, weapon support equipment, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor technical support services, and other related elements of logistics support.

- **Oct. 18, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Oman for AVENGER Fire Units, STINGER Missiles and Advanced Medium Range Air to Air Missiles, as well associated equipment, parts, training and logistical support for an estimated cost of \$1.248 billion.

The Government of the Oman has requested a possible sale of 18 AVENGER Fire Units, 266 STINGER-Reprogrammable Micro-Processor (RMP) Block 1 Anti-Aircraft missiles, 6 STINGER Block 1 Production Verification Flight Test missiles, 24 Captive Flight Trainers, 18 AN/VRC-92E exportable Single Channel Ground and Airborne Radio Systems (SINCGARS), 20 S250 Shelters, 20 High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs), 1 lot AN/MPQ-64F1 SENTINEL Radar software, 290 AIM-120C-7

Surface-Launched Advanced Medium Range Air-to-Air Missiles, 6 Guidance Sections, Surface-Launched Advanced Medium Range Air-to-Air Missile (SL-AMRAAM) software to support Oman's Ground Based Air defense System, training missiles, missile components, warranties, containers, weapon support equipment, repair and return, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor technical support services, and other related elements of logistics support.

- **Nov. 18, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Oman of logistics support and training for one C-130J-30 aircraft being procured through a Direct Commercial Sale and associated equipment, parts and logistical support for a complete package worth approximately \$76 million.

The Government of Oman has requested a possible sale of logistics support and training for one C-130J-30 aircraft being procured through a Direct Commercial Sale, 1 AN/AAQ-24(V) Large Aircraft Infrared Countermeasures System, 7 AN/AAR-54 Missile Approach Warning Systems, 2 AN/ALR-56M Radar Warning Receivers, 2 AN/ALE-47 Countermeasure Dispenser Sets, communication and navigation equipment, software support, repair and return, installation, aircraft ferry and refueling support, spare and repair parts, support and test equipment, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering, technical, and logistics support services, and related elements of logistical and program support.

- **Aug. 3, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Oman of 18 F-16 Block 50/52 aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$3.5 Billion.

The Government of Oman has requested a possible sale of 18 F-16 Block 50/52 aircraft, 20 F100-PW-229 or F110-GE-129 Increased Performance Engines, 36 LAU-129/A Common Rail Launchers, 24 APG-68(V)9 radar sets, 20 M61 20mm Vulcan Cannons, 22 AN/ARC-238 Single Channel Ground and Airborne Radio Systems with HAVE QUICK I/II, 40 Joint Helmet Mounted Cueing Systems, 36 LAU-117 MAVERICK Launchers, 22 ALQ-211 Advanced Integrated Defensive Electronic Warfare Suites (AIDEWS) or Advanced Countermeasures Electronic Systems (ACES) (ACES includes the ALQ-187 Electronic Warfare System and AN/ALR-93 Radar Warning Receiver), Advanced Identification Friend or Foe (AIFF) Systems with Mode IV, 34 Global Positioning Systems (GPS) and Embedded-GPS/Inertial Navigation Systems (INS), 18 AN/AAQ-33 SNIPER Targeting Pods or similarly capable system, 4 DB-110 Reconnaissance Pods (RECCE), 22 AN/ALE-47 Countermeasures Dispensing Systems (CMDS), and 35 ALE-50 Towed Decoys. Also included is the upgrade of the existing 12 F-16 Block 50/52 aircraft, site survey, support equipment, tanker support, ferry services, Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD), conformal fuel tanks, construction, modification kits, repair and return, modification kits, spares and repair parts, construction, publications and technical documentation, personnel training and training equipment, US Government and contractor technical, engineering, and logistics support services, ground based flight simulator, and other related elements of logistics support.

- **July 2, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Oman of logistics support and training for two C-130J-30 aircraft, including associated equipment and parts for an estimated cost of \$54 million.

The Government of Oman has requested a possible sale of logistics support and training for two (2) C-130J-30 aircraft being procured through a Direct Commercial Sale, 2 AN/AAR-47 Missile Approach Warning Systems, 2 AN/ALE-47 Countermeasure Dispenser Sets, 2 AN/ALR-56M Radar Warning Receivers, communication equipment, software support, repair and return, installation, aircraft ferry and refueling support, spare and repair parts, support and test equipment, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering, technical, and logistics support services, and related elements of logistical and program support.

- **July 28, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Oman of JAVELIN anti-tank missile systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$48 million.

The Government of Oman has requested a possible sale of 250 JAVELIN missile rounds and 30 JAVELIN command launch units, simulators, trainers, support equipment, spare and repair parts, publications and technical data, personnel training and equipment, US Government and contractor engineering and logistics personnel services, a Quality Assurance Team, and other related elements of logistics support.

- **July 18, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Oman of podded reconnaissance systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$49 million.

The Government of Oman has requested a possible sale of two Goodrich DB-110 or two BAE Systems F-9120 Podded reconnaissance systems, one Goodrich or one BAE Systems Exploitation Ground Station, support equipment, spares and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor technical and logistics personnel services, and other related elements of logistics support.

- **April 10, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Oman of various munitions for F-16 Fighter Aircraft and associated equipment and services. The total value, if all options are exercised, could be as high as \$42 Million.

The Government of Oman has requested a possible sale of 50,000 20mm high explosive projectiles, 50,000 20mm training projectiles, 300 MK-82 500 lb. general purpose bombs, 200 MK-83 1,000 lb. general purpose bombs, 100 enhanced GBU-12 Paveway II 500 lb. laser guided bomb kits, 50 GBU- 31(v)3/B Joint Direct Attack Munitions, 50 CBU-97/105 sensor fuzed weapon, 20,000 RR-170 self- protection chaff, 20,000 MJU-7B self-protection flares, support equipment, software development/integration, modification kits, spares and repair parts, flight test instrumentation, publications and technical documentation, personnel training and training equipment, US Government and contractor technical and logistics personnel services, and other related elements of logistical and program support.

## Qatar

- **July 29, 2013**- The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Qatar of one (1) A/N FPS-132 Block 5 Early Warning Radar (EWR) and associated equipment, parts, training and logistical support for an estimated cost of \$1.1 billion.

The Government of Qatar has requested a possible sale of one (1) A/N FPS-132 Block 5 Early Warning Radar (EWR) to include Prime Mission Equipment package, technical and support facilities, communication equipment, encryption devices, spare and repair parts, support and test equipment, publications and technical documentation, publications and technical documentation, personnel training and training equipment, U.S Government and contractor engineering, technical and logistics support services; and related elements of logistics and program support. The estimated cost is \$1.1B.

- **June 27, 2013** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Qatar of 2 F117-PW-100 C-17 Globemaster III spare engines, and associated equipment, parts, training and logistical support for an estimated cost of \$35 million.

The Government of Qatar has requested a possible sale of 2 F117-PW-100 C-17 Globemaster III spare engines, support equipment, publications and technical data, personnel training and training equipment, site surveys, U.S. Government and contractor engineering, technical, and logistics support services, design and construction, and other related elements of logistics support. The estimated cost is \$35 million.

- **Mar. 28, 2013** – The Defense Security Cooperation Agency notified Congress March 26 of a possible Foreign Military Sale to Qatar for 500 Javelin Guided Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$122 million. The Government of Qatar has requested a possible sale of 500 Javelin Guided Missiles, 50 Command Launch Units (CLU), Battery Coolant Units, Enhanced Performance Basic Skills Trainer (EPBST), Missile Simulation Rounds (MSR), tripods, Javelin Weapon Effects Simulator (JAVWES), spare and repair parts, rechargeable and non-rechargeable batteries, battery chargers and dischargers, support equipment, publications and technical data, personnel training and training

equipment, U.S. Government and contractor representative engineering, technical and logistics support services, and other related logistics support.

- **May. 15, 2013** – The Defense Security Cooperation Agency notified Congress May 14 of a possible Foreign Military Sale to Qatar for two AN/AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) Systems and associated equipment, parts, training and logistical support for an estimated cost of \$110 million.

The Government of Qatar has requested a possible sale of 2 AN/AAQ-24(V) Large Aircraft Infrared Countermeasures (LAIRCM) Systems for B747-800 Aircraft, 11 Small Laser Transmitter Assemblies, 3 System Processors/Repeaters, 14 AN/AAR-54 Missile Warning Sensors, User Data Module Cards and Control Interface Units, Multi-role Electro-Optic End-to-End test set, Card Memory, Smart Cards, and Support Equipment, Consumables, and Flight Test/Certification. Also included are tools and test equipment, support equipment, spare and repair parts, publications and technical documents, personnel training and training equipment, U.S. Government and contractor technical assistance, and other related elements of logistics and program support. The estimated cost is \$110 million.

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- **Dec. 24, 2012** – The Defense Security Cooperation Agency notified Congress Dec. 21 of a possible Foreign Military Sale to the Government of Qatar for rocket and missile systems and associated equipment, parts, training and logistical support for an estimated cost of \$406 million.

The Government of Qatar has requested a possible sale of 7 M142 High Mobility Artillery Rocket System (HIMARS) Launchers with the Universal Fire Control System (UFCS); 60 M57 Army Tactical Missile System (ATACMS) Block 1A T2K Unitary Rockets (60 pods, 1 rocket per pod); 360 M31A1 Guided Multiple Launch Rocket System (GMLRS) Unitary Rockets (60 pods, 6 rockets per pod); 180 M28A2 Reduced Range Practice Rockets (30 pods, 6 rockets per pod); 7 M68A2 Trainers, 1 Advanced Field Artillery Tactical Data System (AFATDS); 2 M1151A1 High Mobility Multipurpose Wheeled Vehicles (HMMWV); and 2 M1152A2 HMMWVs. Also included are simulators, generators, transportation, wheeled vehicles, communications equipment, spare and repair parts, support equipment, tools and test equipment, technical data and publications, personnel training and training equipment, U.S. government and contractor engineering, technical and logistics support services, and other related elements of logistics support.

- **Nov. 7, 2012** – The Defense Security Cooperation Agency notified Congress Nov. 6 of a possible Foreign Military Sale to the Government of Qatar for the sale of 11 PATRIOT Configuration-3 Modernized Fire Units and associated equipment, parts, training and logistical support for an estimated cost of \$9.9 billion.

The Government of Qatar has requested a possible sale of 11 PATRIOT Configuration-3 Modernized Fire Units, 11 AN/MPQ-65 Radar Sets, 11 AN/MSQ-132 Engagement Control Systems, 30 Antenna Mast Groups, 44 M902 Launching Stations, 246 PATRIOT MIM-104E Guidance Enhanced Missile-TBM (GEM-T) with canisters, 2 PATRIOT MIM-104E GEM-T Test Missiles, 768 PATRIOT Advanced Capability 3 (PAC-3) Missiles with canisters, 10 PAC-3 Test Missiles with canisters, 11 Electrical Power Plants (EPPII), 8 Multifunctional Information Distribution Systems/Low Volume Terminals (MIDS/LVTs), communications equipment, tools and test equipment, support equipment, publications and technical documentation, personnel training and training equipment, spare and repair parts, facility design, U.S. Government and contractor technical, engineering, and logistics support services, and other related elements of logistics and program support.

- **Nov. 5, 2012** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates (UAE) for 48 Terminal High Altitude Area Defense (THAAD) missiles and associated equipment, parts, training and logistical support for an estimated cost of \$1.135 billion. The Government of the United Arab Emirates (UAE) has requested a possible sale of 48 Terminal High Altitude Area Defense (THAAD) missiles, 9 THAAD launchers; test components, repair and return, support equipment, spare and repair parts, personnel training and training equipment, publications and technical data, U.S. Government and contractor technical assistance, and other related logistics support.
- **Nov. 5, 2012** – The Defense Security Cooperation Agency notified Congress November 2 of a possible Foreign Military Sale to the Government of Qatar for two Terminal High Altitude Area Defense (THAAD)

Fire Units and associated equipment, parts, training and logistical support for an estimated cost of \$6.5 billion.

The Government of Qatar has requested a possible sale of 2 Terminal High Altitude Area Defense (THAAD) Fire Units, 12 THAAD Launchers, 150 THAAD Interceptors, 2 THAAD Fire Control and Communications, 2 AN/TPY-2 THAAD Radars, and 1 Early Warning Radar (EWR). Also included are fire unit maintenance equipment, prime movers (trucks), generators, electrical power units, trailers, communications equipment, tools, test and maintenance equipment, repair and return, system integration and checkout, spare/repair parts, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor technical and logistics personnel support services, and other related support elements. The estimated cost is \$6.5 billion.

- **July 12, 2012** – The Defense Security Cooperation Agency notified Congress July 10 of a possible Foreign Military Sale to the Government of Qatar for 700 AGM-114K3A or AGM-114R3 HELLFIRE tactical missiles and associated equipment, parts, training and logistical support for an estimated cost of \$137 million.

The Government of Qatar has requested a possible sale of 700 AGM-114K3A or AGM-114R3 HELLFIRE tactical missiles, 25 training missiles, containers, spare and repair parts, support and test equipment, publications and technical data, personnel and training equipment, US Government and contractor logistics, engineering and technical support, and other related elements of program support.

- **July 12, 2012** – The Defense Security Cooperation Agency notified Congress July 10 of a possible Foreign Military Sale to the Government of Qatar for 24 AH-64D APACHE Block III LONGBOW Attack Helicopters and associated equipment, parts, training and logistical support for an estimated cost of \$3.0 billion.

The Government of Qatar has requested a possible sale of 24 AH-64D APACHE Block III LONGBOW Attack Helicopters, 56 T700-GE-701D Engines, 27 AN/ASQ-170 Modernized Target Acquisition and Designation Sight, 27 AN/AAR-11 Modernized Pilot Night Vision Sensors, 12 AN/APG-78 Fire Control Radars (FCR) with Radar Electronics Unit (LONGBOW component), 12 AN/APR-48A Radar Frequency Interferometers, 28 AN/AAR-57(V)7 Common Missile Warning Systems, 30 AN/AVR-2B Laser Detecting Sets, 28 AN/APR-39A(V)4 Radar Signal Detecting Sets, 28 AN/ALQ-136(V)5 Radar Jammers or Equivalent, 160 Integrated Helmet and Display Sight Systems-21, 58 Embedded Global Positioning Systems with Inertial Navigation, 30 30mm Automatic Chain Guns, 8 Aircraft Ground Power Units, 52 AN/AVS-6 Night Vision Goggles, 60 M299A1 HELLFIRE Missile Launchers, 576 AGM-114R HELLFIRE II Missiles, 295 FIM-92H STINGER Reprogrammable Micro Processor (RMP) Block I Missiles, 50 STINGER Air-to-Air Launchers, 4092 2.75 in Hydra Rockets, and 90 APACHE Aviator Integrated Helmets. Also included are M206 infrared countermeasure flares, M211 and M212 Advanced Infrared Countermeasure Munitions (AIRCMM) flares, training devices, helmets, simulators, generators, transportation, wheeled vehicles and organization equipment, spare and repair parts, support equipment, tools and test equipment, technical data and publications, personnel training and training equipment, US government and contractor engineering, technical, and logistics support services, and other related elements of logistics support.

- **June 28, 2012** – The Defense Security Cooperation Agency notified Congress June 26 of a possible Foreign Military Sale to the Government of Qatar of 10 MH-60R SEAHAWK Multi-Mission Helicopters, 12 MH-60S SEAHAWK Multi-Mission Helicopters with the Armed Helicopter Modification Kit, 48 T-700 GE 401C Engines (44 installed and 4 spare) with an option to purchase an additional 6 MH-60S SEAHAWK Multi-Mission Helicopters with the Armed Helicopter Modification Kit and 13 T-700 GE 401C Engines. The estimated cost is \$2.5 billion.

The Government of Qatar has requested a possible sale of 10 MH-60R SEAHAWK Multi-Mission Helicopters, 12 MH-60S SEAHAWK Multi-Mission Helicopters with the Armed Helicopter Modification Kit, 48 T-700 GE 401C Engines (44 installed and 4 spare) with an option to purchase an additional 6 MH-60S SEAHAWK Multi-Mission Helicopters with the Armed Helicopter Modification Kit and 13 T-700 GE 401C Engines (12 installed and 1 spare) at a later date, communication equipment, spare engine containers, support equipment, spare and repair parts, tools and test equipment, technical data and publications, personnel training and training equipment, US government and contractor engineering, technical, and logistics support services, and other related elements of logistics support.



- **June 13, 2012** – The Defense Security Cooperation Agency notified Congress on June 12 of a possible Foreign Military Sale to the Government of Qatar of 12 UH-60M BLACK HAWK Utility Helicopters, 26 T700-GE-701D Engines (24 installed and 2 spares), 15 AN/AAR-57 V(7) Common Missile Warning Systems, 15 AN/AVR-2B Laser Detecting Sets, 15 AN/APR-39A(V)4 Radar Signal Detecting Sets, 26 M240H Machine Guns, and 26 AN/AVS-6 Night Vision Goggles. The estimated cost is \$1.112 billion.

The Government of Qatar has requested a possible sale of 12 UH-60M BLACK HAWK Utility Helicopters, 26 T700-GE-701D Engines (24 installed and 2 spares), 15 AN/AAR-57 V(7) Common Missile Warning Systems, 15 AN/AVR-2B Laser Detecting Sets, 15 AN/APR-39A(V)4 Radar Signal Detecting Sets, 26 M240H Machine Guns, and 26 AN/AVS-6 Night Vision Goggles. Also included are M206 infrared countermeasure flares, M211 and M212 Advanced Infrared Countermeasure Munitions (AIRCM) flares, M134D-H Machine Guns, system integration and air worthiness certification, simulators, generators, transportation, wheeled vehicles and organization equipment, spare and repair parts, support equipment, tools and test equipment, technical data and publications, personnel training and training equipment, US government and contractor engineering, technical, and logistics support services, and other related elements of logistics support

- **Sept. 22, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Qatar of 6 MH-60R SEAHAWK Multi- Mission Helicopters and associated equipment, parts, training and logistical support for an estimated cost of \$750 million.

The Government of Qatar has requested a possible sale of 6 MH-60R SEAHAWK Multi-Mission Helicopters, 13 T-700 GE 401C Engines (12 installed and 1 spare), communication equipment, support equipment, spare and repair parts, tools and test equipment, technical data and publications, personnel training and training equipment, US government and contractor engineering, technical, and logistics support services, and other related elements of logistics support.

- **July 11, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Qatar of logistics support and training for two C- 17 Globemaster III aircraft and associated equipment and services. The total value, if all options are exercised, could be as high as \$400 million.
- **Sept. 3, 2003** – the Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Qatar of an AN/AAQ-24(V) NEMESIS Directional Infrared Countermeasures System as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$61 million.

The Government of Qatar has requested a possible sale of one AN/AAQ-24(V) NEMESIS Directional Infrared Countermeasures System which consists of three small laser turret assemblies, six missile warning sensors, one system processor, one control indicator unit, two signal repeaters, included associated support equipment, spare and repair parts, publications, personnel training and training equipment, technical assistance, contractor technical and logistics personnel services and other related elements of program support.

## Saudi Arabia

- **Dec. 5, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for tube-launched, optically-tracked wire-guided 2A/2B radio-frequency (RF) Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$900 million.

The Kingdom of Saudi Arabia has requested a possible sale of 9,650 BGM-71 2A Tube-Launched, Optically-Tracked Wire-Guided (TOW) Radio-Frequency (RF) missiles, 4,145 BGM-71 2B Tube-Launched, Optically-Tracked Wire-Guided Aero RF missiles, 91 TOW-2A Fly-to-Buy missiles, 49 TOW-2B Fly-to-Buy missiles, containers, spare and repair parts, support equipment, tools and test equipment, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor engineering, logistics, and technical support services, and other related elements of logistics and program support. The estimated cost is \$900 million.

- **Dec. 5, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for tube-launched, optically-tracked wire-guided missiles and associated equipment, parts, training and logistical support for an estimated cost of \$170 million.

The Kingdom of Saudi Arabia has requested the possible sale of 750 BGM-71 2B Tube-launched, Optically-tracked Wire-guided (TOW) missiles, 7 Fly-to-Buy TOW2B missiles, 1,000 BGM-71 2A TOW missiles, 7 Fly-to-Buy TOW2A missiles, containers, spare and repair parts, support equipment, tools and test equipment, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor engineering, logistics, and technical support services, and other related elements of logistics and program support. The estimated cost is \$170 million.

- **Nov. 18, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Saudi Arabia of C4I system upgrades and maintenance and associated equipment, parts, training and logistical support for an estimated cost of \$1.1 billion.

The Government of Saudi Arabia has requested a possible sale of C4I system upgrades and maintenance including: 109 Link-16 Multifunction Information Distribution System Low Volume Terminals (MIDS-LVT), Global Command and Control Systems – Joint (GCCS-J), Identification Friend or Foe (IFF), Commercial Satellite Communications (SATCOM), Combined Enterprise Regional Information Exchange System (CENTRIXS) and follow-on systems, Commercial High Frequency (HF) Radios, Commercial Ultra High Frequency/ Very High Frequency (UHF/VHF) Radios, HF Voice and Data, HF Sub-Net Relay (SNR), Commercial HF Internet Protocol (IP)/SNR, Global Positioning System (GPS), Air Defense System Interrogator (ADSI), communications support equipment, information technology upgrades, spare and repair parts, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor engineering and technical support, and other elements of program support. The estimated cost is \$1.1 billion.

- **Oct. 15, 2013-** The Defense Security Cooperation Agency notified Congress on Oct. 11 of a possible Foreign Military Sale to Saudi Arabia of support services for an estimated cost of \$90 million.

The Government of Saudi Arabia has requested a possible sale of support services to its Ministry of Defense for three years. The U.S. Military Training Mission (USMTM) in Riyadh, Saudi Arabia is the Security Cooperation Organization (SCO) responsible for identifying, planning, and executing U.S. security cooperation training and advisory support for the Kingdom of Saudi Arabia's Ministry of Defense. The estimated cost is \$90 million.

- **Oct. 15, 2013-** The Defense Security Cooperation Agency notified Congress on Oct. 11 of a possible Foreign Military Sale to Saudi Arabia of various munitions and associated equipment, parts, training and logistical support for an estimated cost of \$6.8 billion.

The Government of Saudi Arabia has requested a possible sale of 650 AGM-84H Standoff Land Attack Missiles-Expanded Response (SLAM-ER), 973 AGM-154C Joint Stand Off Weapons (JSOW), 400 AGM-84L Harpoon Block II missiles, 1000 GBU-39/B Small Diameter Bombs (SDB), 40 CATM-84H Captive Air Training Missiles (CATM), 20 ATM-84H SLAM-ER Telemetry Missiles, 4 Dummy Air Training Missiles, 60 AWW-13 Data Link pods, 10 JSOW CATMs, 40 Harpoon CATMs, 20 ATM-84L Harpoon Exercise Missiles, 36 SDB Captive Flight and Load Build trainers, containers, mission planning, integration support and testing, munitions storage security and training, weapon operational flight program software development, transportation, tools and test equipment, support equipment, spare and repair parts, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor engineering and logistics support services, and other related elements of logistics support. The estimated total cost is \$ 6.8 billion.

- **Aug. 23, 2013-** The Defense Security Cooperation Agency notified Congress Aug 22 of a possible Foreign Military Sale to Saudi Arabia of follow-on support and services for Royal Saudi Air Force (RSAF) aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$1.2 billion.

The Government of Saudi Arabia has requested a possible sale of follow-on support and services for Royal Saudi Air Force (RSAF) aircraft, engines and weapons, to include contractor technical services, logistics support, maintenance support, spares, equipment repair, expendables, support and test equipment, communication support, precision measuring equipment, personnel training and training equipment, technical support, exercises, deployments and other related elements of program support services, U.S. Government and contractor technical and logistics support services, and other related elements of logistical and program support. The estimated cost is \$1.2 billion.

- **July 10, 2013** – The Defense Security Cooperation Agency notified Congress July 9 of a possible Foreign Military Sale to Saudi Arabia of 30 Mark V patrol boats and associated equipment, parts, training and logistical support for an estimated cost of \$1.2 billion.

The Kingdom of Saudi Arabia has requested a possible sale of 30 Mark V patrol boats, 32 27mm guns, spare and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, U.S. Government and contractor engineering, technical, and logistics support services, and other related elements of logistics support. The estimated cost is \$1.2 billion.

- **June 20, 2013-** The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to Saudi Arabia for the continuation of the United States-supported effort to modernize the Saudi Arabian National Guard (SANG), and associated equipment, parts, training and logistical support for an estimated cost of \$4.0 billion.

The Government of Saudi Arabia has requested a possible sale for the continuation of the United States supported effort to modernize the Saudi Arabian National Guard (SANG), consisting of the following defense services: OPM-SANG operation, support and equipment, and Modernization Program support, personnel training and training equipment, transportation, repair and return, spare and repair parts, automation initiatives, SANG Health Affairs Program support, construction, communication and support equipment, publications and technical documentation, U.S. Government and contractor technical, engineering, and logistics support services, and other related elements of program support. The estimated cost is \$4.0 billion.

- **Nov. 28, 2012** – The Defense Security Cooperation Agency notified Congress November 26 of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for technical services to recertify the functional shelf life of up to 300 PATRIOT Advanced Capability-2 (PAC-2) (MIM-104D) Guidance Enhanced Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$130 million.

The Government of Saudi Arabia has requested a possible sale of technical services to recertify the functional shelf life of up to 300 PATRIOT Advanced Capability-2 (PAC-2) (MIM-104D) Guidance Enhanced Missiles (GEM), modernization of existing equipment, spare and repair parts, support equipment, U.S. Government and contractor representatives logistics, engineering, and technical support services, and other related elements of logistics and program support.

- **Nov. 26, 2012** – The Defense Security Cooperation Agency notified Congress Nov 26 of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for a Foreign Military Sales Order II to provide funds for blanket order requisitions under the Cooperative Logistics Supply Support Arrangement for an estimated cost of \$300 million.

The Government of the Kingdom of Saudi Arabia has requested a possible sale of a Foreign Military Sales Order II to provide funds for blanket order requisitions under the Cooperative Logistics Supply Support Arrangement, for spare parts in support of M1A2 Abrams Tanks, M2 Bradley Fighting Vehicles, High Mobility Multipurpose Wheeled Vehicles, equipment, support vehicles and other related logistics support. The estimated cost is \$300 million.

- **Nov. 9, 2012** – The Defense Security Cooperation Agency notified Congress Nov. 8 of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for 20 C-130J-30 Aircraft and 5 KC-130J Air Refueling Aircraft, as well as associated equipment, parts, training and logistical support. The Kingdom of Saudi Arabia (KSA) also requested 120 Rolls Royce AE2100D3 Engines (100 installed and 20 spares), 25 Link-16 Multifunctional Information Distribution Systems, support equipment, spare and repair parts, personnel training and training equipment, publications and technical data, U.S. Government and contractor technical assistance, and other related logistics support. The total estimated cost is \$6.7 billion.
- **Aug. 15, 2012** – The Defense Security Cooperation Agency notified Congress August 9 of a possible Foreign Military Sale to the Government of the Kingdom of Saudi Arabia for ten Link-16 capable data link systems and Intelligence, Surveillance, and Reconnaissance (ISR) suites and associated equipment, parts, training and logistical support at an estimated cost of \$257 million

The Government of the Kingdom of Saudi Arabia (KSA) has requested a possible sale of ten Link-16 capable data link systems and Intelligence, Surveillance, and Reconnaissance (ISR) suites for four KSA-provided King Air 350ER aircraft and associated ground support, with an option to procure, via a Foreign Military Sales, an additional four King Air 350ER aircraft with enhanced PT6A-67A engines and spare parts equipped with the same ISR suites. The ISR suites include a Com-Nav Surveillance/Air Traffic Management cockpit, RF-7800MMP High Frequency Radios with encryption, AN/ARC-210 Very High Frequency/Ultra High Frequency/Satellite Communication Transceiver Radios with Have Quick II and encryption, a High Speed Data Link, an AN/APX-114/119 Identification Friend or Foe Transponder, Embedded Global Positioning System/Inertial Navigations Systems (GPS/INS) with a Selective Availability Anti-spoofing Module (SAASM), AN/AAR-60 Infrared Missile Warning and AN/ALE-47 Countermeasures System, Electro-Optical Sensor, SIGINT System, Synthetic Aperture Radar. Also included are Ground Stations, Training Aids, C<sup>4</sup>I Integration, aircraft modifications, spare and repair parts, support equipment, publications and technical data, personnel training and training equipment, aircraft ferry, US Government and contractor technical, engineering, and logistics support services, and other related elements of logistics support.

- **Aug. 6, 2012** – The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the Government of the Kingdom of Saudi Arabia for follow-on support and services for the Royal Saudi Air Force at an estimated cost of \$850 million.

The Kingdom of Saudi Arabia has requested a possible sale of follow-on support and services for the Royal Saudi Air Force aircraft, engines and weapons; publications and technical documentation; airlift and aerial refueling; support equipment; spare and repair parts; repair and return; personnel training and training equipment; US Government and contractor technical and logistics support services; and other related elements of logistical and program support.

- **Dec. 22, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Kingdom of Saudi Arabia of the continuation of services for the PATRIOT Systems Engineering Services Program (ESP) and associated equipment, parts, training and logistical support for an estimated cost of \$120 million.
- **Oct. 26, 2011** – The Defense Security Cooperation Agency notified Congress Oct. 26 of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for 124 M1151A1-B1 Up-Armored High Mobility Multi-Purpose Wheeled Vehicles (HMMWVs), 99 M1152A1-B2 Up-Armored HMMWVs and associated equipment, parts, training and logistical support for an estimated cost of \$33 million.
- **Sept. 19, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Kingdom of Saudi Arabia of Howitzers, radars, ammunition and associated equipment, parts, training and logistical support for an estimated cost of \$886 million.

The Government of the Kingdom of Saudi Arabia has requested a possible sale for 36 M777A2 Howitzers, 54 M119A2 Howitzers, 6 AN/TPQ-36(V) Fire Finder Radar Systems, 24 Advanced Field Artillery Tactical Data Systems (AFATDS), 17,136 rounds M107 155mm High Explosive (HE) ammunition, 2,304 rounds M549 155mm Rocket Assisted Projectiles (RAPs), 60 M1165A1 High Mobility Multipurpose Vehicles (HMMWVs), 120 M1151A1 HMMWVs, 252 M1152A1 HMMWVs, Export Single Channel Ground And Airborne Radio Systems (SINCGARS), electronic support systems, 105mm ammunition, various

wheeled/tracked support vehicles, spare and repair parts, technical manuals and publications, translation services, training, USG and contractor technical assistance, and other related elements of logistical and program support.

- **June 13, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of a variety of light armored vehicles and associated equipment, parts, training and logistical support for an estimated cost of \$350 million.

The Government of Saudi Arabia has requested a possible sale of 25 LAV-25 series Light Armored Vehicles, 8 LAV Assault Guns, 8 LAV Anti-Tank Vehicles, 6 LAV Mortars, 2 LAV Recovery Vehicles, 24 LAV Command and Control Vehicles, 3 LAV Personnel Carriers, 3 LAV Ammo Carriers, 1 LAV Engineer Vehicle, 2 LAV Ambulances, AN/VRC 90E and AN/VRC-92E Export Single Channel Ground and Airborne Radio Systems (SINCGARS), battery chargers, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering and technical support services, and other related elements of logistical and program support.

- **June 13, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of 404 CBU-105D/B Sensor Fuzed Weapons and associated equipment, parts, training and logistical support for an estimated cost of \$355 million.

The Government of Saudi Arabia has requested a possible sale of 404 CBU-105D/B Sensor Fuzed Weapons, 28 CBU-105 Integration test assets, containers, spare and repair parts, support and test equipment, personnel training and training equipment, publications and technical documentation, US Government and contractor engineering, technical, and logistics support services, and other related elements of logistics support.

- **June 13, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of a variety of light armored vehicles and associated equipment, parts, training and logistical support for an estimated cost of \$263 million.

The Government of Saudi Arabia has requested a possible sale of 23 LAV-25mm Light Armored Vehicles (LAV), 14 LAV Personnel Carriers, 4 LAV Ambulances, 3 LAV Recovery Vehicles, 9 LAV Command and Control Vehicles, 20 LAV Anti-Tank (TOW) Vehicles, 155 AN/PVS-7B Night Vision Goggles, M257 Smoke Grenade Launchers, Improved Thermal Sight Systems (ITSS) and Modified Improved TOW Acquisition Systems (MITAS), Defense Advanced Global Positioning System Receivers, AN/USQ-159 Camouflage Net Sets, M2A2 Aiming Circles, compasses, plotting boards, reeling machines, sight bore optical sets, telescopes, switchboards, driver vision enhancers, spare and repair parts, support and test equipment, personnel training and training equipment, publications and technical documentation, US Government and contractor engineering, technical and logistics support services, and other related elements of logistics support.

- **May 12, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale Order to the Kingdom of Saudi Arabia for various night and thermal vision equipment, including parts and logistical support with an estimated cost of \$330 million.

The Government of the Kingdom of Saudi Arabia has requested a possible sale of 200 High-performance In-Line Sniper Sight (HISS) Thermal Weapon Sights - 1500 meter, 200 MilCAM Recon III LocatIR Long Range, Light Weight Thermal Binoculars with Geo Location, 7,000 Dual Beam Aiming Lasers (DBAL A2), 6000 AN/PVS-21 Low Profile Night Vision Goggles (LPNVG), spare and repair parts, support equipment, technical documentation and publications, translation services, training, U. S. government and contractor technical and logistics support services, and other related elements of logistical and program support.

- **Nov. 18, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of 150 JAVELIN Guided Missiles and associated equipment, parts and logistical support for a complete package worth \$71 million.

The Kingdom of Saudi Arabia has requested a possible sale of 150 JAVELIN Guided Missiles, 12 Fly-to-Buy Missiles, 20 JAVELIN Command Launch Units (CLUs) with Integrated Day/Thermal Sight, containers, missile simulation rounds, Enhanced Producibility Basic Skills Trainer (EPBST), rechargeable and non-rechargeable batteries, battery dischargers, chargers, and coolant units, support equipment, spare and repair

parts, publications and technical data, US Government and contractor engineering and logistics personnel services, and other related elements of logistics support.

- **Oct. 20, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of:
  - 84 F-15SA Aircraft
  - 170 APG-63(v)3 Active Electronically Scanned Array Radar (AESA) radar sets
  - 193 F-110-GE-129 Improved Performance Engines
  - 100 M61 Vulcan Cannons
  - 100 Link-16 Multifunctional Information Distribution System/Low Volume Terminal (MIDS/LVT) and spares
  - 193 LANTIRN Navigation Pods (3<sup>rd</sup> Generation-Tiger Eye)
  - 338 Joint Helmet Mounted Cueing Systems (JHMCS)
  - 462 AN/AVS-9 Night Vision Goggles (NVGS)
  - 300 AIM-9X SIDEWINDER Missiles
  - 25 Captive Air Training Missiles (CATM-9X)
  - 25 Special Air Training Missiles (NATM-9X)
  - 500 AIM-120C/7 Advanced Medium Range Air-to-Air Missiles (AMRAAM)
  - 25 AIM-120 CATMs
  - 1,000 Dual Mode Laser/Global Positioning System (GPS) Guided Munitions (500 lb.)
  - 1,000 Dual Mode Laser/GPS Guided Munitions (2000 lb.)
  - 1,100 GBU-24 PAVEWAY III Laser Guided Bombs (2000lb)
  - 1,000 GBU-31B V3 Joint Direct Attack Munitions (JDAM) (2000 lb.)
  - 1,300 CBU-105D/B Sensor Fuzed Weapons (SFW)/Wind Corrected Munitions Dispenser (WCMD)
  - 50 CBU-105 Inert
  - 1,000 MK-82 500lb General Purpose Bombs
  - 6,000 MK-82 500lb Inert Training Bombs
  - 2,000 MK-84 2000lb General Purpose Bombs
  - 2,000 MK-84 2000lb Inert Training Bombs
  - 200,000 20mm Cartridges
  - 400,000 20mm Target Practice Cartridges
  - 400 AGM-84 Block II HARPOON Missiles
  - 600 AGM-88B HARM Missiles
  - 169 Digital Electronic Warfare Systems (DEWS)
  - 158 AN/AAQ-33 Sniper Targeting Systems
  - 169 AN/AAS-42 Infrared Search and Track (IRST) Systems
  - 10 DB-110 Reconnaissance Pods

- 462 Joint Helmet Mounted Cueing System Helmets
- 40 Remotely Operated Video Enhanced Receiver (ROVER)
- 80 Air Combat Maneuvering Instrumentation Pods

Also included are the upgrade of the existing Royal Saudi Air Force (RSAF) fleet of seventy (70) F-15S multi-role fighters to the F-15SA configuration, the provision for CONUS-based fighter training operations for a twelve (12) F-15SA contingent, construction, refurbishments, and infrastructure improvements of several support facilities for the F-15SA in-Kingdom and/or CONUS operations, RR-188 Chaff, MJU-7/10 Flares, training munitions, Cartridge Actuated Devices/Propellant Actuated Devices, communication security, site surveys, trainers, simulators, publications and technical documentation, personnel training and training equipment, US government and contractor engineering, technical, and logistical support services, and other related elements of logistical and program support. The estimated cost is \$29.432 billion.

- **Oct. 20, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of:
  - 10 AH-64D Block III APACHE Longbow Helicopters
  - 28 T700-GE-701D Engines
  - 13 Modernized Targeting Acquisition and Designation Systems/Pilot
  - Night Vision Sensors
  - 7 AN/APG-78 Fire Control Radars with Radar Electronics Unit
  - (Longbow Component)
  - 7 AN/APR-48A Radar Frequency Interferometer
  - 13 AN/APR-39 Radar Signal Detecting Sets
  - 13 AN/AVR-2B Laser Warning Sets
  - 13 AAR-57(V)3/5 Common Missile Warning Systems
  - 26 Improved Countermeasures Dispensers
  - 26 Improved Helmet Display Sight Systems
  - 14 30mm Automatic Weapons
  - 6 Aircraft Ground Power Units
  - 14 AN/AVS-9 Night Vision Goggles
  - 640 AGM-114R HELLFIRE II Missiles
  - 2,000 2.75 in 70mm Laser Guided Rockets
  - 307 AN/PRQ-7 Combat Survivor Evader Locators
  - BS-1 Enhanced Terminal Voice Switch
  - Fixed-Base Precision Approach Radar
  - Digital Airport Surveillance Radar
  - DoD Advanced Automation Service
  - Digital Voice Recording System

Also included are trainers, simulators, generators, training munitions, design and construction, transportation, tools and test equipment, ground and air based SATCOM and line of sight communication equipment, Identification Friend or Foe (IFF) systems, GPS/INS, spare and repair parts, support

equipment, personnel training and training equipment, publications and technical documentation, US Government and contractor engineering, technical, and logistics support services, and other related elements of program support. The estimated cost is \$2.223 billion.

- **Oct. 20, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of:
  - 24 AH-64D Block III APACHE Longbow Helicopters
  - 58 T700-GE-701D Engines
  - 7 Modernized Targeting Acquisition and Designation Systems/Pilot
    - Night Vision Sensors
  - 10 AN/APG-78 Fire Control Radars with Radar Electronics Unit
    - (Longbow Component)
  - 10 AN/APR-48A Radar Frequency Interferometer
  - 27 AN/APR-39 Radar Signal Detecting Sets
  - 27 AN/AVR-2B Laser Warning Sets
  - 27 AAR-57(V)3/5 Common Missile Warning Systems
  - 54 Improved Countermeasures Dispensers
  - 28 30mm Automatic Weapons
  - 6 Aircraft Ground Power Units
  - 48 AN/AVS-9 Night Vision Goggles
  - 106 M299A1 HELLFIRE Longbow Missile Launchers
  - 24 HELLFIRE Training Missiles
  - 1,536 AGM-114R HELLFIRE II Missiles
  - 4,000 2.75 in 70mm Laser Guided Rockets
  - 307 AN/PRQ-7 Combat Survivor Evader Locators
  - BS-1 Enhanced Terminal Voice Switch
  - Fixed-Base Precision Approach Radar
  - Digital Airport Surveillance Radar
  - DoD Advanced Automation Service
  - Digital Voice Recording System

Also included are trainers, simulators, generators, training munitions, design and construction, transportation, tools and test equipment, ground and air based SATCOM and line of sight communication equipment, Identification Friend or Foe (IFF) systems, GPS/INS, spare and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, US Government and contractor engineering, technical, and logistics support services, and other related elements of program support. The estimated cost is \$3.3 billion.

- **Oct. 20, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of Saudi Arabia of:
  - 36 AH-64D Block III APACHE Helicopters
  - 72 UH-60M BLACKHAWK Helicopters



- 36 AH-6i Light Attack Helicopters
- 12 MD-530F Light Turbine Helicopters
- 243 T700-GE-701D Engines
- 40 Modernized Targeting Acquisition and Designation Systems/Pilot
- Night Vision Sensors
- 20 AN/APG-78 Fire Control Radars with Radar Electronics Unit
- 20 AN/APR-48A Radar Frequency Interferometer
- 171 AN/APR-39 Radar Signal Detecting Sets
- 171 AN/AVR-2B Laser Warning Sets
- 171 AAR-57(V)3/5 Common Missile Warning Systems
- 318 Improved Countermeasures Dispensers
- 40 Wescam MX-15Di (AN/AAQ-35) Sight/Targeting Sensors
- 40 GAU-19/A 12.7mm (.50 caliber) Gatling Guns
- 108 Improved Helmet Display Sight Systems
- 52 30mm Automatic Weapons
- 18 Aircraft Ground Power Units
- 168 M240H Machine Guns
- 300 AN/AVS-9 Night Vision Goggles
- 421 M310 A1 Modernized Launchers
- 158 M299 HELLFIRE Longbow Missile Launchers
- 2,592 AGM-114R HELLFIRE II Missiles
- 1,229 AN/PRQ-7 Combat Survivor Evader Locators
- 4 BS-1 Enhanced Terminal Voice Switches
- 4 Digital Airport Surveillance Radars
- 4 Fixed-Base Precision Approach Radar
- 4 DoD Advanced Automation Service
- 4 Digital Voice Recording System

Also included are trainers, simulators, generators, munitions, design and construction, transportation, wheeled vehicles and organization equipment, tools and test equipment, communication equipment, Identification Friend or Foe (IFF) systems, GPS/INS, spare and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, US Government and contractor engineering, technical, and logistics support services, and other related elements of program support. The estimated cost is \$25.6 billion.

- **Sept. 15, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Kingdom of Saudi Arabia for continuation of a blanket order training program as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$350 million.
- **Dec. 17, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of 2,742 BGM-71E-4B-RF Tube-Launched, Optically-Tracked, Wire-Guided (TOW-2A) Radio Frequency missiles and associated parts, equipment, training and logistical support for a complete package worth approximately \$177 million.

The Government of Saudi Arabia has requested a possible sale for 2,742 BGM-71E-4B-RF Tube-Launched, Optically-Tracked, Wire-Guided (TOW-2A) Radio Frequency missiles (42 missiles are for lot acceptance testing), publications and technical documentation, and other related elements of logistics support. The proposed sale will support efforts to modernize the Saudi Arabian National Guard (SANG).

- **Aug. 6, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Saudi Arabia of Communication Navigation and Surveillance/Air Traffic Management upgrades for an estimated cost of \$1.5 billion.
- The Government of Saudi Arabia has requested a possible sale of a two-phased approach for the Communication Navigation and Surveillance/Air Traffic Management upgrades of the communication and navigation systems for the Royal Saudi Air Force's fleet of 13 RE-3, KE-3, and E-3 aircraft. Phase One will include Global Positioning System/Inertial Navigation Systems, 8.33 kHz Very High Frequency radios, Traffic Collision Avoidance Systems, Mode S Transponders, Mode 4/5 Identification Friend or Foe Encryption, High Frequency radio replacements, Multifunctional Information Display Systems for Link 16 operations, Have Quick II radios, Satellite Communications and Common Secure Voice encryptions. Phase 2 will include digital flight deck instrumentation and displays, flight director system/autopilot, flight management system, cockpit data line message and combat situational awareness information. Also included are spare and repair parts, support and test equipment, publication and technical documentation, personnel training and training equipment, personnel support and test equipment to include flight simulators, US government and contractor engineering support, technical and logistics support services, and other related elements of logistical and program support.
- **Aug. 5, 2009** – The Defense Security Cooperation Agency notified Congress of a possible foreign military sale to the Government of Saudi Arabia of Tactical Airborne Surveillance System (TASS) aircraft upgrades for an estimated cost of \$530 million.

The Government of Saudi Arabia has requested services to upgrade the TASS aircraft, installation of 10 AN/ARC-230 High Frequency Secure Voice/Data Systems, 25 AN/ARC-231 or 25 AN/ARC-210 Very High Frequency/Ultra High Frequency (VHF/UHF) Secure Voice/Data Systems, four Multifunctional Information Distribution System-Low Volume Terminals (MIDS-LVT), four LN-100GT Inertial Reference Units, 25 SY-100 or functional equivalent Crypto Systems, seven SG-250 or functional equivalent Crypto Systems, six SG-50 or functional equivalent, 10 CYZ-10 Fill Devices, modification of existing ground stations, TASS equipment trainer, mission scenario generator (simulator), and maintenance test equipment; spare and repair parts, support and test equipment, personnel training and training equipment, publications and technical documentation including flight/operator/maintenance manuals, modification/construction of facilities, US Government and contractor engineering and support services and other related elements of logistics support.

- **Sept. 26, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of AIM-9X SIDEWINDER missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$164 million.

The Government of Saudi Arabia has requested a possible sale of 250 All-Up-Round AIM-9X SIDEWINDER Missiles, 84 AIM-9X SIDEWINDER Captive Air Training Missiles (CATMs), 12 AIM-9X SIDEWINDER Dummy Air Training Missiles (DATMs), missile containers, missile modifications, test sets and support equipment, spare and repair parts, publications and technical data, maintenance, personnel training and training equipment, contractor engineering and technical support services, and other related elements of logistics support.

- **Sept. 26, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of AN/FPS-117 Long Range Radar Upgrade as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$145 million.
- **Sept. 26, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of Multifunctional Information Distribution System/Low Volume Terminals as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$31 million.

The Government of Saudi Arabia has requested a possible sale of 80 Link 16 Multifunctional Information

Distribution System/Low Volume Terminals (MIDS/LVT-1) to be installed on United Kingdom Eurofighter Typhoon aircraft, data transfer devices, installation, testing, spare and repair parts, support equipment, personnel training, training equipment, contractor engineering and technical support, and other related elements of program support.

- **July 18, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of continued assistance in the modernization of the Saudi Arabian National Guard (SANG) as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.8 billion.
- **Jan. 14, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of Joint Direct Attack Munitions as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$123 million.

The Government of Saudi Arabia has requested a possible sale of 900 Joint Direct Attack Munitions (JDAM) tail kits (which include 550 GBU-38 for MK-82, 250 GBU-31 for MK-84, 100 GBU-31 for BLU-109). Also included are bomb components, mission planning, aircraft integration, publications and technical manuals, spare and repair parts, support equipment, contractor engineering and technical support, and other related elements of program support.

- **Dec. 7, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of AN/AAQ-33 SNIPER Targeting Pods as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$220 million.

The Government of Saudi Arabia has requested a possible sale of 40 AN/AAQ-33 SNIPER Advanced Targeting Pods, aircraft installation and checkout, digital data recorders/cartridges, pylons, spare and repair parts, support equipment, publications and technical documentation, contractor engineering and technical support, and other related elements of program support.

- **Dec. 7, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of mission equipment for AWACS aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$400 million.

The Government of Saudi Arabia has requested a possible sale of five sets of Airborne Early Warning (AEW) and Command, Control and Communications (C3) mission equipment/Radar System Improvement Program (RSIP) Group B kits for subsequent installation and checkout in five E-3 Airborne Warning and Control Systems (AWACS). In addition, this proposed sale will include spare and repair parts, support equipment, publications and technical documentation, contractor engineering and technical support, and other related elements of program support.

- **Oct. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of Light Armored Vehicles and High Mobility Multi-Purpose Wheeled Vehicles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$631 million.

The Government of Saudi Arabia has requested a possible sale for:

- 37 Light Armored Vehicles - Assault Gun (LAV-AG)
- 26 LA V-25 mm
- 48 LA V Personnel Carriers
- 5 Reconnaissance LAVs
- 5 LAV Ambulances
- LAV Recovery Vehicles
- 25 M1165A1 High Mobility Multi-purpose Wheeled Vehicles (HMMWV)
- 25 M1165A1 HMMWV with winch

- 124 M240 7.62mm Machine Guns
- 525 AN/PVS-7D Night Vision Goggles (NVGs):

Various M978A2 and M984A2 Heavy Expanded Mobility Tactical Trucks, family of Medium Tactical Vehicles, 120mm Mortar Towed, M242 25mm guns, spare and repair parts; sets, kits, and outfits; support equipment; publications and technical data; personnel training and training equipment; contractor engineering and technical support services and other related elements of logistics support.

- **Nov. 13, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the government of Saudi Arabia of 155 General Electric (GE) F110- GE129 engines or 20 Pratt & Whitney F100-PW229 engines in support of F-15S aircraft.

The Government of Saudi Arabia has requested a possible sale of either option or a combination of: a) 155 General Electric (GE) F110-GE129 engines in support of F-15S aircraft; b) 20 Pratt & Whitney (P&W) F100-PW229 engines to restore/refurbish the Royal Saudi Air Force (RSAF) current inventory of P&W engines; support equipment; engine improvement program services; flight tests; Technical Coordination Group/International Engine Management; Hush House refurbishment; aircraft integration; program management; publications; trainers; mission planning; training; spare and repair parts; repair and return services; contractor technical assistance and other related elements of logistics support. The estimated cost is \$1.5 billion.

- **Sept. 27, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia for the continued effort to modernize the Saudi Arabian National Guard (SANG). The total value, if all options are exercised, could be as high as \$84 million.

The Government of Saudi Arabia has requested a possible sale for the continuation of the United States supported effort to modernize the SANG by providing Major Defense Equipment (MDE) and non-MDE items:

552 AN/VRC-90E Single Channel Ground and Airborne Radio Systems (SINCGARS) Vehicular Single Long-Range Radio Systems; 225 AN/VRC-92E SINCGARS Vehicular Single Long-Range Radio Systems Dual Long Range; 1,214 AN/PRC-119 E SINCGARS Man-pack Single Long-Range Radio Systems Man-pack and vehicular installation kits, communications management system computers, antennas, programmable fill devices, support equipment; publications and technical data; personnel training and training equipment; contractor engineering and technical support services and other related elements of logistics support.

- **July 28, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of the remanufacture and upgrade of AH-64A to AH-64D Apache helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$400 million.

The Government of Saudi Arabia has requested a possible sale of the remanufacture and upgrade of 12 AH-64A APACHE attack helicopters to AH-64D configuration, 10 spare T-700-GE-701A engines converted to T-700-GE-701D models, Modernized Targeting Acquisition and Designation Systems, spare and repair parts, communications equipment, support equipment, simulators, quality assurance teams, chemical masks, tools and test sets, chaff dispensers, Integrated Helmet and Display Sight Systems, electronic equipment, test facility spares, publications, Quality Assurance Teams service, personnel training and training equipment, US Government and contractor technical support and other related elements of logistics support.

- **July 28, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of M1A1 and upgrade of M1A2 to M1A2S Abrams tanks as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$2.9 billion.

The Government of Saudi Arabia has requested a possible sale and reconfiguration for 58 M1A1 Abrams tanks, which, together with 315 M1A2 Abrams tanks already in Saudi Arabia's inventory, will be modified and upgraded to the M1A2S (Saudi) Abrams configuration, kits, spare and repair parts, communications and support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services and other related elements of logistics support.

- **July 21, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia to provide funds for blanket order requisitions, under a Cooperative Logistics Supply Support Agreement (CLSSA). The total value, if all options are exercised, could be as high as \$276 million.

Government of Saudi Arabia has requested a possible sale for a Foreign Military Sales Order (FMSO) to provide funds for blanket order requisitions FMSO II, under the CLSSA for spare parts in support of M1A2 Abrams Tanks, M2 Bradley Fighting Vehicles, High Mobility Multipurpose Wheeled Vehicles (HMMWVs), construction equipment, and support vehicles and equipment in the inventory of the Royal Saudi Land Forces Ordnance Corps.

- **July 20, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia to continue modernization of the Saudi Arabian National Guard (SANG). The total value, if all options are exercised, could be as high as \$5.8 billion.

The Government of Saudi Arabia has requested a possible sale for the continuation of the United States supported effort to modernize the SANG by providing Major Defense Equipment (MDE) and non-MDE items:

- 724 LAV-25, LAV-AG, LAV-M, LAV-AT, LAV-CC, LAV-PC, LAV-A, LAV-AC LAV-E and LAV-R Light Armored Vehicles (LAV)
- 1,160 AN/VRC-90E Single Channel Ground and Airborne Radio Systems (SINCGARS) Vehicular Single Long-Range Radio Systems
- 627 AN/VRC-92E SINCGARS Vehicular Single Long-Range Radio Systems
- 518 AN/VRC-119 E SINCGARS Vehicular Single Long-Range Radio Systems
- 2,198 SINCGARS Spearhead Handheld
- 1,700 AN/AVS-7D Night Vision Goggles (NVG)
- 432 AN/PVS-14 NVG
- 630 AN/PAS-13 Thermal Weapon Sight
- 162 84mm Recoilless Rifle

Also included are Harris Corporation Commercial High Frequency Radios; various commercial vehicles; fixed facilities and ranges; simulations; generators; battery chargers; protective clothing; shop equipment; training devices; spare and repair parts; sets, kits, and outfits; support equipment; publications and technical data; personnel training and training equipment; contractor engineering and technical support services and other related elements of logistics support.

- **July 20, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of UH-60L Utility/Assault Black Hawk helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$350 million.

The Government of Saudi Arabia has requested a possible sale of 24 UH-60L Utility/Assault Black Hawk helicopters, spare and repair parts, communications and support equipment, publications and technical data, personnel training and training equipment, contractor engineering and technical support services and other related elements of logistics support.

- **Oct. 3, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of the continuation of contractor, technical services and logistics support for aircraft, aircraft engines, and missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$760 million.

The Government of Saudi Arabia has requested a possible sale for the continuation of support for F-5, F-15, RF-5, E-3, RE-3, KE-3, and C-130, aircraft; F-100-PW-220/229, J-85, T-56, and CFM-56 aircraft engines; and A/TGM-65 AIM-7 and AIM-9 missiles which have already been delivered to and are being operated by Saudi Arabia; contractor services; maintenance; spare and repair parts; support and test equipment; goggles;

communication support; precision measuring equipment; personnel training; training equipment; technical support; and contractor engineering; and other related elements of program support.

- **Oct. 3, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia for the continuation of the United States supported effort to modernize the Saudi Arabian National Guard (SANG) by providing Major Defense Equipment (MDE) and non-MDE items as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$918 million.

Major Defense Equipment (MDE) proposed:

- 144 Armored Personnel Carrier Vehicles
  - 12 Water Cannon Vehicles
  - 52 Command and Control Vehicles
  - 17 Ambulance and Evacuation Vehicles
  - 36 Platoon Command Vehicles
  - 55,500 40mm Ammunition
  - 3,600 F-2000 5.56mm Assault Rifles with 40mm Grenade Launchers
  - 51,400 F-2000 5.56mm Assault Rifles without 40mm Grenade Launchers
  - 198 AN/VRC-90E SINCGARS Vehicular Single Long-Range Radio Systems
- **Oct. 3, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of 165 Link 16 Multifunctional Information Distribution System (MIDS)/Low Volume Terminals (Fighter Data Link terminals), 25 Joint Tactical Information Distribution System (JTIDS) terminals as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$401 million.
  - **Sept. 27, 2005** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of upgrade kits and services for 54 C-130E/H aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$800 million.
  - **Nov. 20, 2003** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of modernization support services for the Saudi Arabian National Guard as well as associated equipment. The total value, if all options are exercised, could be as high as \$990 million.

The Government of Saudi Arabia has requested a possible sale of services for the continuation of the US supported effort to modernize the Saudi Arabian National Guard (SANG) by providing minor defense articles including spare and repair parts for V150 armored vehicles, light armored vehicles, artillery pieces, communications equipment, other military equipment, medical equipment and medicines, automation equipment and software for logistics, training, and management, translated (into Arabic) tactical and technical manuals. Defense services transferred would include training, professional military advice and assistance, management assistance, contract administration, construction oversight, transportation of equipment, upper echelon maintenance, management of repair and return of components. These support services would be for the period 1 January 2004 through 31 December 2008. This proposed sale does not entail the procurement of Major Defense Equipment.

- **Sept. 3, 2003** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to Saudi Arabia of AN/AAQ-24(V) NEMISIS Directional Infrared Countermeasures Systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$240 million.

The Government of Saudi Arabia has requested a possible sale of four AN/AAQ-24(V) NEMISIS Directional Infrared Countermeasures Systems which consist of three small laser turret assemblies, six missile warning sensors, one system processor, one control indicator unit, two signal repeaters, included associated support equipment, spare and repair parts, publications, personnel training and training equipment, technical

assistance, contractor technical and logistics personnel services and other related elements of program support.

## UAE

- **Jan 24, 2014** – The Defense Security Cooperation Agency notified Congress on Jan 23 of a possible Foreign Military Sale to the United Arab Emirates (UAE) for equipment in support of a Direct Commercial Sale of F-16 Block 61 Aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$270 million.
- **Jan. 8, 2014**- The Defense Security Cooperation Agency notified Congress today of a possible Foreign Military Sale to the United Arab Emirates (UAE) for blanket order training and associated training and logistical support for an estimated cost of \$150 million.

The Government of the United Arab Emirates has requested a possible sale for follow on United States Marine Corps blanket order training, training support, and other related elements of program support for the United Arab Emirates Presidential Guard Command. The estimated cost is \$150 million

- **Oct. 15, 2013**- The Defense Security Cooperation Agency notified Congress Oct. 11 of a possible Foreign Military Sale to the United Arab Emirates of various munitions and associated equipment, parts, training and logistical support for an estimated cost of \$4.0 billion.

The Government of the United Arab Emirates has requested a possible sale of 5000 GBU-39/B Small Diameter Bombs (SDB) with BRU-61 carriage systems, 8 SDB Guided Test Vehicles for aircraft integration, 16 SDB Captive Flight and Load Build trainers, 1200 AGM-154C Joint Stand Off Weapon (JSOW), 10 JSOW CATMs, 300 AGM-84H Standoff Land Attack Missiles-Expanded Response (SLAM-ER), 40 CATM-84H Captive Air Training Missiles, 20 ATM-84H SLAM-ER Telemetry Missiles, 4 Dummy Air Training Missiles, 30 AWW-13 Data Link pods, containers, munitions storage security and training, mission planning, transportation, tools and test equipment, integration support and testing, weapon operational flight program software development, support equipment, spare and repair parts, publications and technical documentation, personnel training and training equipment, U.S. Government and contractor engineering and logistics support services, and other related elements of logistics support. The estimated cost is \$4.0 billion.

- **Nov. 5, 2012** – The Defense Security Cooperation Agency notified Congress November 2 of a possible Foreign Military Sale to the Government of the United Arab Emirates (UAE) for 48 Terminal High Altitude Area Defense (THAAD) missiles, 9 THAAD launchers; test components, repair and return, support equipment, spare and repair parts, personnel training and training equipment, publications and technical data, U.S. Government and contractor technical assistance, and other related logistics support. The estimated cost is \$1.135 billion.
- **Aug. 1, 2012** – The Defense Security Cooperation Agency notified Congress July 31 of a possible Foreign Military Sale to the Government of the United Arab Emirates for two F117-PW-100 engines for an estimated cost of \$35 million.

The Government of the United Arab Emirates (UAE) has requested a proposed sale of 2 spare F117-PW-100 engines in support of the UAE C-17 GLOBEMASTER III aircraft.

- **Dec. 14, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates of 260 JAVELIN Anti-Tank Guided Missiles and associated equipment, parts, weapons, training and logistical support for an estimated cost of \$60 million.
- **Nov. 30, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates (UAE) for 4,900 JDAM kits and associated equipment, parts, training and logistical support for an estimated cost of \$304 million.

The Government of the UAE has requested a possible sale of 4,900 JDAM kits which includes 304 GBU-54 Laser JDAM kits with 304 DSU-40 Laser Sensors, 3,000 GBU-38(V)1 JDAM kits, 1,000 GBU-31(V)1 JDAM kits, 600 GBU-31(V)3 JDAM kits, 3,300 BLU-111 500lb General Purpose Bombs, 1,000 BLU-117 2,000lb General Purpose Bombs, 600 BLU-109 2,000lb Hard Target Penetrator Bombs, and four BDU-50C

inert bombs, fuzes, weapons integration, munitions trainers, personnel training and training equipment, spare and repair parts, support equipment, US government and contractor engineering, logistics, and technical support, and other related elements of program support.

- **Sept. 22, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of 500 AGM-114R3 HELLFIRE missiles and associated equipment, parts, training and logistical support for an estimated cost of \$65 million.
- **Sept. 22, 2011** – The Defense Security Cooperation Agency notified Congress Wednesday of a possible Foreign Military Sale to the United Arab Emirates of 107 MIDS/LVT LINK 16 Terminals and associated equipment, parts, training and logistical support for an estimated cost of \$401 million.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 107 Link 16 Multifunctional Information Distribution System/Low Volume Terminals (MIDS/LVT) to be installed on the United Arab Emirates F-16 aircraft and ground command and control sites, engineering/integration services, aircraft modification and installation, testing, spare and repair parts, support equipment, repair and return support, personnel training, contractor engineering and technical support, interface with ground command and control centers and ground repeater sites, and other related elements of program support.

- **June 24, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates of five UH-60M BLACKHAWK VIP helicopters and associated equipment, parts, training and logistical support for an estimated cost of \$217 million.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 5 UH-60M BLACKHAWK VIP helicopters, 12 T700-GE-701D engines (10 installed and 2 spares), 6 AN/APR-39A(V)4 Radar Signal Detecting Sets, 80 AN/AVS-9 Night Vision Devices, 6 Star Safire III Forward Looking Infrared Radar Systems, 6 AAR-57(V)3 Common Missile Warning Systems, 6 AN/AVR-2B Laser Warning Sets, C406 Electronic Locator Transmitters, Traffic Collision Avoidance Systems and Weather Radars, Aviation Mission Planning Station, government furnished equipment, ferry support, spare and repair parts, publications and technical documentation, support equipment, personnel training and training equipment, ground support, communications equipment, US Government and contractor technical and logistics support services, tools and test equipment, and other related elements of logistics support.

- **May 25, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates for support and maintenance of F-16 aircraft and associated equipment, parts, training and logistical support for an estimated cost of \$100 million.
- **April 19, 2011** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates of 218 AIM-9X-2 SIDEWINDER Block II Tactical Missiles and associated equipment, parts, training and logistical support for an estimated cost of \$251 million.

The Government of the United Arab Emirates has requested a possible sale of 218 AIM-9X-2 SIDEWINDER Block II Tactical Missiles, 40 CATM-9X-2 Captive Air Training Missiles (CATMs), 18 AIM-9X-2 WGU-51/B Tactical Guidance Units, 8 CATM-9X-2 WGU-51/B Guidance Units, 8 Dummy Air Training Missiles, containers, support and test equipment, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **Nov. 4, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates of 100 Army Tactical Missile Systems (ATACMS) and 60 Low Cost Reduced-Range Practice Rockets (LCRRPR), as well as associated equipment, training and logistical support for a total package worth approximately \$140 million.
- **Nov. 4, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of 30 AH-64D Block II lot 10 APACHE helicopters, remanufactured to AH-64D Block III configuration and 30 AH-64D Block III APACHE helicopters, as well as associated parts, equipment, training and logistical support for a complete package worth approximately \$5.0 billion.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 30 AH-64D Block II lot 10 APACHE helicopters, remanufactured to AH-64D Block III configuration, 30 AH-64D Block III



APACHE helicopters, 120 T700-GE-701D engines, 76 Modernized Target Acquisition and Designation Sight/Modernized Pilot Night Vision Sensors, 70 AN/APG-78 Fire Control Radars with Radar Electronics Units, 70 AN/ALQ-144A(V)3 Infrared Jammers, 70 AN/APR-39A(V)4 Radar Signal Detecting Sets, 70 AN/ALQ-136(V)5 Radar Jammers, 70 AAR-57(V)3/5 Common Missile Warning Systems, 30mm automatic weapons, improved counter measure dispensers, communication and support equipment, improved helmet display sight systems, trainer upgrades, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor engineering and logistics support services, and other related elements of logistics support.

- **May 26, 2010** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates (UAE) of logistics support and training for two C-17 Globemaster III aircraft and associated equipment, parts, and logistical support for an estimated cost of \$250 million.

The Government of the UAE has requested a possible sale of logistics support and training for two additional C-17 Globemaster III aircraft being procured through a Direct Commercial Sale, 2 AN/AAR-47 Missile Warning Systems, 4 AN/ARC-210 (RT-1794C) HAVE QUICK II Single Channel Ground and Airborne Radio Systems, 2 AN/ALE-47 Countermeasure Dispensing Sets, ferry support, communication and navigation equipment, spare and repair parts, support and test equipment, publications and technical documentation, maintenance, personnel training and training equipment, US Government and contractor engineering and logistics support services, preparation of aircraft for shipment, and other related elements of logistics support.

- **Dec. 28, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of logistics support, training and related systems for 12 C-130J-30 aircraft being procured through a Direct Commercial Sale. The complete package, including associated parts and equipment is worth approximately \$119 million.

The Government of the United Arab Emirates has requested a possible sale of logistics support and training for 12 C-130J-30 aircraft being procured through a Direct Commercial Sale, 12 AN/AAR-47 Missile Approach Warning Systems, 12 AN/ALE-47 Countermeasure Dispenser Sets, 12 AN/ALR- 56M Radar Warning Receivers, communication equipment, navigation equipment, aircraft ferry and refueling support, spare and repair parts, support and test equipment, publications and technical documentation, mission planning systems, personnel training and training equipment, US Government and contractor engineering, technical, and logistics support services, and related elements of logistical and program support.

- **Dec. 28, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of enhanced guided bomb units and associated parts, equipment, training and logistical support for a complete package worth approximately \$290 million.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 400 GBU-24(V) 11/B Enhanced PAVEWAY III, 400 GBU-24(V) 12/B Enhanced PAVEWAY III, 400 GBU-49(V) 3/B Enhanced PAVEWAY II, 400 GBU-50(V) 1/B Enhanced PAVEWAY II, 800 MK-84 2000 lbs. Bombs, 400 MK-82 500 lbs. Bombs, 400 BLU-109/B 2000 lbs. Bombs. Also included are containers, bomb components, mission planning software, spare and repair parts, publications and technical documentation, personnel training and training equipment, US Government and contractor technical and logistics personnel support services, and other related elements of program support.

- **Dec. 18, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to United Arab Emirates of logistics support, training and related systems for four C-17 Globemaster III aircraft being procured through a Direct Commercial Sale. The complete package, including associated parts and equipment is worth approximately \$501 million.

The Government of the United Arab Emirates has requested a possible sale of logistics support and training for four C-17 Globemaster III aircraft being procured through a Direct Commercial Sale, 5 AN/AAR-47 Missile Warning Systems, 10 AN/ARC-210 (RT-1794C) HAVE QUICK II Single Channel Ground and Airborne Radio Systems, 5 AN/ALE-47 Countermeasure Dispensing Sets, ferry support, communication and navigation equipment, spare and repair parts, support and test equipment, publications and technical documentation, maintenance, personnel training and training equipment, US Government and contractor engineering and logistics support services, preparation of aircraft for shipment, and other related elements of

logistics support.

- **Dec. 3, 2009** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of 16 Chinook helicopters, and communication equipment, as well as associated parts, equipment, training and logistical support for a complete package worth approximately \$2.0 billion.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 16 CH-47F CHINOOK Helicopters, 38 T55-GA-714A Turbine engines, 20 AN/APX-118 Transponders, 20 AN/ARC-220 (RT-1749) Single Channel Ground and Airborne Radio Systems (SINCGARS) with Electronic counter-countermeasures, 40 AN/ARC-231 (RT-1808A) Receiver/Transmitters, 18 AN/APR-39A(V)1 Radar Signal Detecting Sets with Mission Data Sets, flight and radar signal simulators, support equipment, spare and repair parts, publications and technical documentation, site survey, construction and facilities, US Government and contractor technical and logistics support services, and other related elements of logistics support.

- **Aug. 4, 2009** – The Defense Security Cooperation Agency (DSCA) notified Congress of a possible Foreign Military Sale to the Government of the United Arab Emirates of 362 HELLFIRE Missiles, 15 Common Missile Warning Systems (CMWS) four radar-warning receivers, and related equipment and services. The estimated cost is \$526 million.

The Government of the United Arab Emirates has requested a possible sale of 362 AGM-114N3 HELLFIRE Missiles, 15 AAR-57 CMWS, 21 AN/APR-39A (V) four Radar Warning Receivers, eight AN/APX-118 Transponders, 19 AN/PRC-117 Radios, 15 AN/ASN-128D Doppler Radars, six AN/ARC-231 Radios, and 15 Data Transfer Modules/Cartridges.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of UH-60M BLACK HAWK Helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$774 million.

The Government of the United Arab Emirates (UAE) has requested a possible sale of 14 UH-60M BLACK HAWK helicopters with engines; 6 T700-GE-701D spare engines; 14 each AN/ALQ-144A(V)3 Infrared (IR) Countermeasure Sets, AN/APR-39A(V)4 Radar Signal Detecting Sets, AAR-57(V)3 Common Missile Warning Systems, and AN/AVR-2B Laser Warning Sets; Weaponization of 23 UH-60M BLACK HAWK helicopters; 390 AGM-114N HELLFIRE missiles; 8 HELLFIRE training missiles; 30 M299 HELLFIRE launchers; 23,916 MK-66 Mod 4 2.75” Rocket Systems in the following configuration: 1,000 M229 High Explosive Point Detonate, 540 M255A1 Flechette, 1,152 M264 RP Smoke, 528 M274 Smoke Signature, 495 M278 Flare, 720 M274 Infrared Flare, 20,016 HA23 Practice; 22 GAU-19 Gatling Gun Systems; and 93 M-134 Mini-Gun. Also included: spare and repair parts, publications and technical data, support equipment, personnel training and training equipment, ground support, communications equipment, US Government and contractor technical and logistics personnel services, aircraft survivability equipment, tools and test equipment, and other related elements of logistics support.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of Surfaced Launched Advanced Medium Range Air-to-Air Missile (SL-AMRAAM) as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$445 million.

The Government of United Arab Emirates has requested a possible sale of 288 AIM-120C-7 Advanced Medium Range Air-to-Air Missiles (AMRAAM) Air Intercept Missiles, 2 Air Vehicle-Instrumented (AAVI), 144 LAU-128 Launchers, Surface Launched Advanced Medium Range Air-to-Air Missile (SL-AMRAAM) software, missile warranty, KGV-68B COMSEC chips, training missiles, containers, support and test equipment, missiles components, spare/repair parts, publications, documentation, personnel training, training equipment, contractor technical and logistics personnel services, and other related support elements.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of Terminal High Altitude Air Defense (THAAD) Fire Units as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$6.95 billion.

The Government of the United Arab Emirates has requested a possible sale of 3 Terminal High Altitude Air Defense (THAAD) Fire Units with 147 THAAD missiles, 4 THAAD Radar Sets (3 tactical and one maintenance float), 6 THAAD Fire and Control Communication stations, and 9 THAAD Launchers. Also included are fire unit maintenance equipment, prime movers (trucks), generators, electrical power units, trailers, communications equipment, tools, test and maintenance equipment, repair and return, system integration and checkout, spare/repair parts, publications, documentation, personnel training, training equipment, contractor technical and logistics personnel services, and other related support elements.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of PATRIOT Advanced Capability-3 Missile Systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$121 million.

The Government of the United Arab Emirates has requested a possible sale of 4 PATRIOT Advanced Capability (PAC-3) Intercept Aerial Missiles with containers, 19 MIM-104D Guided Enhanced Missiles-T with containers (GEM-T), 5 Anti-Tactical Missiles, and 5 PATRIOT Digital Missiles. These missiles are for lot validation and testing of the PAC-3 missiles notified for sale in Transmittal Number 08-17. Also included: AN/GRC-245 Radios, Single Channel Ground and Airborne Radio Systems (SINCGARS Export), power generation equipment, electric power plant, trailers, communication and support equipment, publications, spare and repair parts, repair and return, United States Government and contractor technical assistance and other related elements of logistics support.

- **Sept. 9, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of AVENGER and VMSLP fire units as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$737 million.

The Government of the United Arab Emirates has requested a possible sale of 78 complete AVENGER fire units including Vehicle Mounted Stinger Launch Platform (VMSLP) fire units (72 Tactical and 6 floats); 780 STINGER-Reprogrammable Micro-Processor (RMP) Block 1 Anti-Aircraft missiles; 24 STINGER Block 1 Buy-to-Fly missiles; 78 Captive Flight Trainers, 16 AN/MPQ64-F1 SENTINEL Radars; 78 AN/VRC-92E Single Channel Ground and Airborne Radio System (SINCGARS) radios; 78 Enhanced Position Location Reporting System (EPLRS) Radios; 20 Integrated Fire Control Stations, S250 Shelters on HMMWVs, communication and support equipment, system integration and checkout, tools and test equipment, spare and repair parts, publications, installation, personnel training and training equipment, US Government and contractor technical support services, and other related elements of logistics support. The estimated cost is \$737 million.

- **Jan. 3, 2008** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of various munitions and weapon systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$326 million.

The Government of the United Arab Emirates has requested a possible sale of 224 AIM-120C-7 Advanced Medium Range Air-to-Air Missile (AMRAAM) Air Intercept Missiles, 200 GBU-31 Guided Bomb Unit (GBU) Joint Direct Attack Munition tail kits, 224 MK-84 2,000 pound General-Purpose Bombs (GPB), 450 GBU-24 PAVEWAY III with MK-84 2,000 pound GPB, 488 GBU-12 PAVEWAY II with MK-82 500 pound GPB, 1 M61A 20mm Vulcan Cannon with Ammunition Handling System, containers, bomb components, spare/repair parts, publications, documentation, personnel training, training equipment, contractor technical and logistics personnel services, and other related support elements.

- **Dec. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of the PATRIOT Advanced Capability-3 Missile System as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$9 billion.

The Government of United Arab Emirates has requested a possible sale of the PATRIOT Air Defense System consisting of 288 PATRIOT Advanced Capability-3 (PAC-3) missiles, 216 Guidance Enhanced Missiles-T (GEM-T), 9 PATRIOT Fire Units that includes 10 phased array radar sets, 10 Engagement Control Stations on trailers, 37 Launching Stations (4 per fire unit), 8 Antenna Mast Groups (AMG) on trailers, 8 Antenna Mast Group (AMG) Antennas for Tower Mounts, AN/GRC-245 Radios, Single Channel Ground and Airborne Radio Systems (SINCGARS, Export), Multifunctional Information Distribution System/Low Volume Terminals, generators, electrical power units, trailers, communication and support equipment,

publications, spare and repair parts, repair and return, United States Government and contractor technical assistance and other related elements of logistics support.

- **Dec. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of upgrades and refurbishments of E-2C aircraft as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$437 million.

The Government of the United Arab Emirates has requested a possible sale of upgrades and refurbishment for three (3) used, excess defense articles (EDA) E-2C Airborne Early Warning (AEW) aircraft with radar and antennae. These upgrades/refurbishments include E-2C Group II Navigation Upgrade configuration, 8 T56-A-427 Turbo Shaft engines, Phased Maintenance Inspection, spare and repairs parts, support equipment, personnel training and training equipment, technical data and publications, tactical software and software laboratory, system software development and installation, testing of new system modifications, US Government and contractor technical and logistics personnel services, and other related support elements.

- **Oct. 4, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of Blast Fragmentation Warheads and HELLFIRE II Longbow Missiles as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$428 million.

The Government of the United Arab Emirates has requested a possible sale of 300 AGM-114M3 Blast Fragmentation Warheads and 900 AGM-114L3 HELLFIRE II Longbow missiles, 200 Blast Fragmentation Sleeve Assemblies, containers, spare and repair parts, test and tool sets, personnel training and equipment, publications, US Government and contractor engineering and logistics personnel services, Quality Assurance Team support services, and other related elements of logistics support.

- **June 18, 2007** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates (UAE) of a Pilot Training Program as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$201 million.

The Government of United Arab Emirates (UAE) has requested a possible sale of United States pilot proficiency training programs and munitions, services and support for F-16 aircraft which includes: 105,000 20mm cartridges, aircraft modifications kits, maintenance, participation in joint training Continental United States (CONUS) pilot proficiency training program, Introduction to Fighter Fundamentals training, F-5B transition and continuation training, fighter follow-on preparation training, participation in joint training exercises, fuel and fueling services, supply support, flight training, spare/repair parts, support equipment, program support, publications, documentation, personnel training, training equipment, contractor technical and logistics personnel services and other related program requirements necessary to sustain a long-term CONUS training program.

- **Sept. 21, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of High Mobility Artillery Rocket Systems as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$752 million.

The Government of United Arab Emirates (UAE) has requested a possible sale of the following Major Defense Equipment (MDE):

- 20 High Mobility Artillery Rocket Systems (HIMARS) Launchers
- 101 M39A1 Army Tactical Missile System (ATACMS) Block 1A Anti-Personnel-Anti- Material Rocket Pods
- 101 M39A1 ATACMS Block 1A Unitary Rocket Pods
- 130 M30 Guided Multiple Launch Rocket Systems (GMLRS) Dual Purpose Improved Conventional Munitions Rocket Pods
- 130 M31 Unitary High Explosive GMLRS Pods
- 60 Multiple Launcher Rocket Systems (MLRS) Practice Rocket Pods
- 104 M26 MLRS Rocket Pods

- 20 M1084A1 Family of Medium Truck Vehicles
- 3 M108A1 Wreckers

Also included are support equipment, communications equipment, spare and repair parts, test sets, batteries, laptop computers, publications and technical data, personnel training and equipment, systems integration support, a Quality Assurance Team and a Technical Assistance Fielding Team service support, United States Government and contractor engineering and logistics personnel services, and other related elements of logistics support.

- **July 28, 2006** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of UH-60M Black Hawk helicopters as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$808 million.

The Government of United Arab Emirates (UAE) has requested a possible sale of 26 UH-60M Black Hawk helicopters with engines, 4 spare T-700-GE-701D turbine engines, spare and repair parts, publications and technical data, support equipment, personnel training and training equipment, ground support, communications equipment, contractor engineering, logistics, a Quality Assurance Team, aircraft survivability equipment, tools and test equipment, and other related elements of logistics support.

- **Nov. 17, 2004** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of JAVELIN anti-tank missile systems, missile rounds and associated equipment and services. The total value, if all options are exercised, could be as high as \$135 million.

The Government of United Arab Emirates (UAE) has requested a possible sale of 1,000 JAVELIN anti-tank missile systems consisting of 100 JAVELIN command launch units and 1,000 JAVELIN missile rounds, simulators, trainers, support equipment, spare and repair parts, publications and technical data, personnel training and equipment; US Government and contractor engineering and logistics personnel services, a Quality Assurance Team, and other related elements of logistics support.

- **Sept. 4, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of refurbished/upgraded E-2C aircraft to the E-2C HAWKEYE 2000 as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$400 million.

The Government of the United Arab Emirates has requested a possible sale of 5 refurbished/upgraded E-2C aircraft to the E-2C HAWKEYE 2000, 5 AN/APS-145 radars, 5 OE-335/A antenna groups, 10 T56-A-425 engines, spare and repairs parts, support equipment, personnel training and training equipment, technical data and publications, tactical software and software laboratory, system software development and installation, testing of new system modifications, US Government and contractor engineering and logistics services and other related elements of program support.

- **July 17, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to UAE of an upgrade of Apache Helicopters from the A variant to the D variant as well as associated equipment and services. The total value, if all options are exercised, could be as high as \$1.5 Billion.

The Government of United Arab Emirates (UAE) has requested the remanufacture of 30 AH-64A APACHE helicopters to the AH-64D model aircraft. This proposed sale also includes: 32 AN/APG-78 AH-64D Longbow Fire Control Radar; 32 APR-48A Radar Frequency Interferometer; 32 T-700-GE-701C engines; 32 Modernized Target Acquisition Designation Sight/Pilot Night Vision Sensors; 240 AGM-114L3 HELLFIRE II laser guided missiles; 49 AGM-114M3 HELLFIRE II blast fragmentation missiles; 90 M299 HELLFIRE missile launchers; 33 AN/ALQ-211 Suite of Integrated Radio Frequency Countermeasures/Suite of Integrated Infrared Countermeasures; HAVE GLASS II capabilities; spare and repair parts; support equipment; publications and technical documentation; personnel training and training equipment; US Government and contractor technical support and other related elements of logistics support.

- **May 23, 2002** – The Defense Security Cooperation Agency notified Congress of a possible Foreign Military Sale to the United Arab Emirates of Evolved Seasparrow Missiles and associated equipment and services. The total value, if all options are exercised, could be as high as \$245 Million.

The Government of United Arab Emirates (UAE) has requested a possible sale of 237 Evolved Seasparrow Missiles (ESSM), containers, spare and repair parts, shipboard equipment, support and test equipment, publications and technical documentation, personnel training and training equipment, US Government and contractor technical assistance and other related elements of logistics support.

Source: Defense Security Cooperation Agency (DSCA), <http://www.dsca.mil/>

## ***The Wild Cards Shaping the Future Conventional-Asymmetric Balance***

These risks also need to be considered in the context of a broader range of “wild cards” that are shaping the future military balance. Iran’s capability to “close the Gulf,” which has been the main focus of the previous scenario analysis – is only one of the future scenarios that must be considered. The rapidly changing political, civil, and strategic dynamics of the region extend beyond the Gulf and create major uncertainties within in. They also create a broader set of questions about containment, deterrence, and the risks of war.

The risks of any form of actual conflict should not be exaggerated. No major form of conflict in the Gulf is probable when seen from the idealized viewpoint of a “rational bargainer.” At the same time, they should not be minimized. Little about recent history indicates, however, that war, the way it begins, the way it escalates, and the force mixes involved are always shaped by rational bargainers sharing enough common perceptions and values to show restraint.

Many forms of conflict are possible, and they range from the most limited forms of asymmetric challenge discussed in the following section to the missile and nuclear challenges discussed in *Volume II: The Missile and Nuclear Dimensions*. The missile dimension can be termed **Wild Card One** and the nuclear dimension **Wild Card Two**. But, there are many other major wild cards that affect the balance:

### **Wild Card Three: A Weak, Isolated, and/or Iranian Influenced Iraq**

As has been touched upon earlier, Iraq is a major wild card in the Gulf conventional balance. Iraq lost almost all of its major conventional weapons during the US-led invasion in 2003. Quite aside from Iraq’s conventional military weakness, there are risks that could change Iraq’s impact on the balance.

There is a growing risk that ethnic and sectarian divisions in Iraq will make it fundamentally weaker and may halt US arms transfers, and that a combination of civil conflict or tensions and isolation by other Arab states will push Iraq into closer ties with Iran. The political violence in the Sunni-dominated Anbar province of Iraq -- and AQL/ISIS takeover of Fallujah and Ramadi in late December 2013 -- has increased the likelihood of this wild card becoming a reality. At the same time, the US has offered increased assistance in the form of future arms sales and intelligence sharing while simultaneously pressuring President Maliki to reach out to disaffected Sunnis and negotiate in order to bring the violence to an end.

Iran too has offered support to the Maliki government and has even said, “Iraq is our friend,”<sup>423</sup> when discussing their interest in helping end the conflict. While direct Iranian support of the Iraqi Shi’ite government, in the form of Iranian forces in Iraq, is near impossible, these overtures represent both the Iranian government’s dislike for the rise of Sunni radicalism in its neighbor and their interest in influencing Iraqi leaders.

The Syrian crisis has also changed the role of Iraq. Turkey has increasingly become involved in the Syrian civil war on the Sunni and Kurdish sides. Turkey has also aligned itself with the Kurds

in Iraq in ways that have created growing tensions with the Shi'ite dominated, Maliki-led central government.

Moreover, some US experts who have recently served in Iraq have raised the specter that the current tensions between Sunnis and the Shi'ites and Alawites in Syria, Iraq, and Iran could change the strategic map of the region in ways that would have a major impact on the Southern Gulf. There is no evidence as yet that this is a high probability, but it is a possibility and a warning that the balance in the Gulf can never be separated from either the broader patterns of conflict in the Middle East, or from the more local causes of political turmoil in the Gulf states described in *Volume III: The Gulf and the Arabian Peninsula*.

#### **Wild Card Four: A New Strategic Threat to the West of the Gulf: The Sunni-Syrian Divide**

More broadly, the tensions between the ruling Shi'ite regime and majority, the Sunni minority and former rulers of already led to Iranian, Qatari, Saudi, UAE, Lebanese, Jordanian, British, French, Turkish, Russian and US interfere in the Syrian civil war, and affected their relations with each other. It has brought Jordan and Lebanon directly into the confrontation between Iran and the Southern Gulf states, and further isolated an Iraq which has had uncertain relations with its Arab neighbors and the Southern Gulf states – all of which have Sunni rulers and most of which have a Sunni majority.

Sunni and Shi'ite tensions are rising in the rest of the Islamic world and affecting key nations like Pakistan, as well as the stability of nations with a large Shi'ite population like Bahrain, Saudi Arabia, and Yemen. They tend to threaten or push out non-Islamic minorities, and interact with ethnic tensions like those between Arabs and Kurds.

Regardless of whether Iraq divides along sectarian lines, Lebanon has already done so at the political level and Syria may divide between Sunni and Alawite and possibly between Arab and Kurd. Sunni-Shi'ite/Alawite tensions fuel Sunni extremism and violent extremist movements, creating a problem for moderate Sunni governments and states. They fuel both Iran's defensiveness and its security ambitions and efforts to link its security to that of Iraq, Syria, and Lebanon. They also increase Iran's incentives to seek support from Shi'ites in Southern Gulf states like Bahrain, Kuwait, Saudi Arabia, and the UAE – as well as Yemen. The end result is a security dynamic that affects both conventional and asymmetric forces, and is separate from – but constantly interact with – the more narrow tensions between the US and Iran.

At this point in time, it is not possible to predict how directly it will affect the balance in the Gulf, but history is a warning that religious struggles rarely remain purely rational in character, particularly when they interact with ethnic, demographic, and economic tensions.

#### **Wild Card Five: The Uncertain Future Role of US Land Forces and Declining British and French Power Projection Capabilities**

There is little current evidence that the various fiscal debates in the US, or present level of defense cuts, will prevent the US from maintaining a mix of air-sea forces capable of deterring and defending against Iranian forces. There is, however, considerable ambiguity as to how dependent



to US will be on power projection versus forward deployed forces, and this is particularly true of land forces.

In spite of some media war scares during the US occupation of Iraq – and ones that led Iran to massive land defense exercises to prepare for a US invasion – the US never made serious practical preparations for a ground invasion of Iran. The US now has no combat forces in Iraq and limited ground forces equivalent to roughly two combat brigades in the rest of the Gulf. It has also cut its total ground force in Kuwait from a peak of around 32,000 at the end of 2010 to around 23,500-25,000 in the fall of 2012 and seems to plan to cut the total to around 12,500-13,600. The US does not have the ground forces, logistical base, or support capabilities to invade Iran from Afghanistan – a scenario that makes no geographic sense in any case. The US has not established the level of prepositioning and active forces it will deploy in the future.

More broadly, Britain, France, and other NATO European powers face far more serious defense spending constraints than the US, and Britain and France face the prospect of further defense spending cuts plus new priorities for security action in the Mediterranean, Africa, and the Levant. Britain and France have long played a key role as security partners in the gulf

### **Wild Card Six: The Kuwait “Hinge”**

The GCC also has only limited ability to deploy its total ground forces in the upper Gulf, and its multinational Rapid Deployment Force in the upper Gulf is a hollow force and an exercise in political symbolism. Kuwait has only small ground forces, and Saudi forces would take time to reinforce and are not structured to sustain operations outside Saudi Arabia. Iraq has almost no modern armor and artillery capability and no modern air force. These limits could be important in any combat where air power could not dominate the air-land battle such as an Iranian attack into Iraq and through Iraq into Kuwait.

Both the US and the other Southern Gulf states need to reassess the best way to ensure Kuwait has the ability to deter and contain any threat from Iran or problems caused by the rising internal instability in Iraq.

### **Wild Card Seven: Jordan**

Jordan has always been a key factor in the Gulf balance and gulf security, effectively providing security and stability on the Gulf’s western flank. Jordan, however, is caught up in major economic problems, demographic and employment pressures, dealing with a combination of Iraqi and Syrian refugees, and playing a key role in supporting the Syrian rebel forces.

The Southern Gulf states have already taken steps to make Jordan a member of the Gulf Cooperation Council, and have sharply increased their aid to Jordan. The US has also stepped up its cooperation with Jordan. It may be too early to include Jordan in any counts of the Gulf balance, but it is a de facto partner in the Gulf balance, its role in security and stability are already a key aspect of the Gulf balance, and its importance seems likely to increase steadily because of the crisis in Syria.

### **Wild Card Eight: The Challenge of Yemen**

Saudi Arabia has already had to fight a limited border war against the Houthi rebels near the Saudi-Yemeni border. Saudi forces found, as did those of the US in Iraq in 2004, that fighting insurgents on their own ground is often far more difficult than dealing with a conventional enemy. It faces a

continuing border crisis because of smuggling, Yemenis crossing to seek work, and human trafficking through Yemen into Saudi Arabia from other countries.

Yemen is also now the center of Al Qa'ida in the Peninsula, which poses a continuing terrorist threat and one that had led the US to work closely with the government of Yemen in helping it improve its counterterrorism capabilities. So far, this does not seem to have affected Oman, but Oman share a border with Yemen and fought a major war against Yemeni-based insurgents during the Dhofar Rebellion of the 1960s and 1970s.

Yemen has made some recent progress in achieving political stability, but this progress remains tenuous at best. It has made no progress in dealing with its steadily deteriorating economy and its chronic water and drug problems. Tribal, North-South, and Islamist extremist tensions compound the power struggles in its capital, and Yemen may yet become a failed state.

These pressures have led Saudi Arabia – which has treated Yemen as a possible threat to its Southern flank since – to reorganize its forces along the Yemeni border and create a major “fence” of sensors and barriers to try to better secure its border area. Saudi Arabia has also begun to crack down on Yemeni illegal immigrants both for security purposes and to help employ its own citizens.

The situation would be far worse if Yemen came under insurgent or hostile rule. This would sharply increase the threat Saudi Arabia and Oman face in the Red Sea, and affect key Saudi ports and oil export facilities on the Red Sea coast.

### **Wild Card Nine: Egypt and the Red Sea**

The security of the Gulf and US capability to project power is partly dependent on Egypt's alignment with the US, its willingness to allow the US to project power by air and use the Suez Canal, and its role as a major voice in shaping opinion throughout the Arab World. The fall of President Mubarak and the instability in Egypt since Morsi's ousting by the military raises at least some questions about all of these alignments.

The other southern or African states of the Red Sea have long been unstable, although their forces have been too small to really matter, and they have no clear ties to Iran. They might become more of a threat if Egypt did not align itself with the US and Arab Gulf states, and this threat would be more severe if Yemen became a threat or French influence and power projection efforts did not continue in Djibouti.

### **Wild Card Ten: Internal Tensions and Instability in the Southern Gulf**

The tensions that help limit military cooperation between the Southern Gulf states are described in depth in *Volume III: The Gulf and the Arabian Peninsula*. These tensions, however, are only part of the issues involved. The Southern Gulf states may have more oil wealth than most Arab states, but this scarcely means they do not have serious internal ethnic and sectarian tensions, that some do not have problems in meeting the key needs and expectations of their peoples, that demographic pressures do not create problems in employment, and that dependence on foreign labor does not increase these problems.

The US, its European allies, and the Southern Gulf states all need to recognize why leaders like King Abdullah, the Sultan Qabus, and the rulers of the UAE have put added resources into dealing with civil unrest and needs, and that national security needs do compete for resources with internal

security needs. As Egypt, Tunisia, Libya, Yemen, and Syria have all made clear in different ways, the balance of civil stability is always at least as important as the military balance, and is a key factor in shaping the risk of asymmetric warfare.

### **Wild Card Eleven: What If Preventive Strikes Occur**

The final wild card is analyzed in more depth in *Volume II: The Missile and Nuclear Dimensions*, but needs to be considered in terms of the other wild cards that affect the conventional and asymmetric balance. If either Israel or the US do launch a preventive strike on Iran, this would change the entire structure of Iranian competition with the US, the Southern Gulf states, and other states.

Iran's leaders have in the past shown that they can be rationale and deterrable, but they also escalated and prolonged the Iran-Iraq War in ways that went far beyond the level of conflict that many US and outside experts predicted once Iraq was forced to withdraw from Iran. Game theory, rational bargaining, and escalation ladders based on shared perceptions are useful tools, but history warns that wars generally occur because the sides involved do not share the same information, calculations, perceptions, or values.

Iran leadership might feel it had to lash out in extreme ways to discourage further attacks, to maintain popular credibility in Iran, to try to win outside support or intervention, or out of anger and ideology. It might react in ways affected by the uncertainties in its command and control and the risk IRGC commanders may act on their own or under autonomous control (in part to avoid decapitating Western attacks on C<sup>4</sup>I). In the past, some commanders have been encouraged to engage in aggressive behavior. Given the sheer number of actors, it is possible escalation could occur without the full backing of the government, let alone the entire populace.

If Israeli carries out a limited preventive strike, Iran might try to use its allies. Any major rocket attack on Israeli population centers from Hezbollah or Hamas, and particularly one that produces serious damage or casualties as the result of a major volley or lucky hit, could lead Israel to respond with a massive strike on targets in Gaza or Lebanon, or again lead to restrikes on Iran. It is unclear that either Hamas or Hezbollah would support Iran in this way, or take such risks, but Iran's leadership might feel it had to counter-escalate in the most dramatic way possible, or simply overreact out of anger, ideology, or a perceived need to show resolve, and might get support from Hamas or Hezbollah if it chose to do so.

Iran might also strike in the Gulf and/or Iran might choose to use a far higher level of asymmetric force to punish the US for its ties to Israel. It would be particularly likely to do so if it felt this would win Arab support, and/or if the Iranian leadership assumed the US had given Israel tacit permission or a "green light."<sup>424</sup>

It is harder to estimate what Iran would do if the US carried out a preventive strike, or if an asymmetric conflict in the Gulf escalated to major air and cruise missile strikes on Iran. Iran could not win any such escalation on a purely military level, or even do critical damage to the US military in a war of attrition, at least given its lack of conventionally-armed long-range range missiles or rockets with terminal guidance and precision strike capabilities.

Iran might escalate to range missile warfare across the Gulf even though its present conventionally armed ballistic missiles lack the accuracy and lethality to do serious damage to Israel except

through an incredibly lucky strike. Such an Iranian use of missiles might trigger Israeli follow-on strikes, particularly if Israeli missile defenses failed.

Similarly, even if Iran tried to saturate Gulf air defenses using the remainder of its air force in some last ditch strike, it would be likely to lose almost all of its forces while doing minimal damage. While it could cause political and economic turmoil by striking such soft targets as desalinization plants and energy infrastructure, its military capacity to do so with any accuracy would be swiftly curtailed.

As for the longer run, such an attack might affect the current Iranian regime, but history warns that this is a dangerous bet. Foreign threats can do much to provide some form of unity and nationalism. Iran could well withdraw from the Nuclear Non-Proliferation Treaty, and use any limited preventive strikes as an excuse to build and deploy nuclear forces. It could do even more to build up its asymmetric warfare capabilities, and perhaps carry out some form of low level asymmetric attacks in the Gulf or using proxies and partners. Iran could intervene more actively in trying to influence or subvert Southern Gulf Shi'ite populations, use force to intervene in Iraq, and do more to support a surviving Assad and/or Alawites and Shi'ites in Syria and Lebanon,

### *Implications for US Policy*

The US must plan for the probability that Iran will continue to compete militarily with the US and friendly regional states as long as anything like the present Iranian regime remains in power, the Strait of Hormuz remains strategically critical, and Iran seeks to establish itself as a regional power. Regardless of the recent P5+1 framework planned to slow down and degraded Iranian enrichment capabilities, Iran is likely to continue to challenge and undermine the US presence in the Middle East. The US cannot afford to be lax or dismissive in confronting Iran's strategy. To effectively engage Iran, the US must continue to develop the means to counter Iran's evolving assets throughout the region.

The conventional military balance is only one side of the story. Iran's strategy is developing a combination of conventional and asymmetric forces that presents a wide range of significant challenges to US policy makers, Arab Gulf states, and other regional powers and allies despite US and allied conventional superiority. Iran is linking the steady expansion of its asymmetric forces to new uses of its conventional forces and is building up its missile and its nuclear capabilities in part to deter retaliation against its use of asymmetric warfare, and in part to make that asymmetric capability more effective.

Iran almost certainly recognizes that US conventional superiority would give the US and its Gulf allies the upper hand in a serious conventional conflict where they could use the full spectrum of its abilities to attack a range of Iranian military targets. The US, however, must work with its Gulf partners and other allies to deter and defend against very different types of conflict and be prepared to face sharp limits on the amount of force it can use.

For example, Iran's mines and submarines could be used in a low-level war of attrition that would present serious problems for the US through the danger of escalation. They could inflict losses on US forces or those of US regional allies, damage critical infrastructure, and disrupt or halt Gulf commerce with little or no warning and in ways where the US and allied response might have to be far more limited.

Iran's robust mine warfare capability and the current weaknesses in the countermine operations capability of the US and Arab Gulf navies could pose a serious threat to the security of the Gulf. Virtually any military or commercial vessel is capable of laying mines if it has the physical capacity to carry them. Consequently, the IRGCN and the Iranian navy are capable of seeding the Gulf and Strait of Hormuz with a large number of mines in a relatively short period of time using far more vessels than the US and Gulf navies could track.

If the US is to successfully neutralize this complex mix of threats that can be used in so many different ways and at some many different levels of escalation, it must continuously adapt its forward deployed and power projection forces to deal Iranian efforts to improve its capability conduct a battle of attrition in the Gulf or near it, and deal with contingencies like Iran's use of free floating mines, unattributable attacks, and any other form of asymmetric warfare than threatens friendly Gulf states and the flow of world energy exports from the region.

At the same time the US must continue to maintain strong forces in the Gulf to contain, deter, and – if necessary – engage Iran's forces. The US must be able to join with its Arab Gulf allies and decisively win a battle to keep Gulf shipping and exports flowing in a period of weeks. At the same time, the US must work closely with allies like Britain and France, and seek the cooperation of key allies like Turkey. At a more technical level, the US must continue to equip, modernize, and train the forces of its regional allies to confront asymmetric threats.

The US must be fully prepared for the range of other military options that Iran is developing. Iran's ties to Hezbollah, Hamas, Sadrist and other Shi'ite militias in Iraq, Syria, and Shi'ite minorities in other Gulf states create relationships where it may be able to use state and non-state actors in asymmetric warfare.

Iran has already used some of these assets against Israel and to undermine the internal stability and cohesion of US allies in the Middle East (most notably Lebanon and Iraq), to indirectly attack US forces in Iraq, and to help Hamas seize power in the Gaza Strip. Given the strategic importance of these states in the regional balance, the US cannot allow Iran to continue to cultivate and strengthen such threatening movement and create potential proxies. The US must continue to fund, support, and train its regional allies to counter Iran's proxies within their borders and undercut their popular appeal. Furthermore, the US must work to stem Iranian material and financial support to these groups.

At the same time, the US must seek to deter war, and limit escalation if some incident or clash occurs. The US must persuade its regional allies, its European allies and other states that it will seek to avoid war and escalate only as much as necessary if an incident or clash does occur. It cannot win their support if they feel the US is reckless or does not consider their interests. The US must also consider that any clash or even the risk of a clash will have an impact on world prices and the global economy.

Finally, the US must look beyond Iran and at the full range of "wild cards" listed earlier. Iran is scarcely the only threat or risk on the Gulf, and forces in the Gulf are only part of the broader strategic developments that will shape the future balance.

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<sup>118</sup> The PAC 3 extends the air defense range from the 70 kilometer limit of the initial Patriot missile to 160 kilometers, holds four missiles per canister versus one for the PAC 2, and extends to missile defense range to some 20 kilometers – depending on the missile and its closing velocity. An unclassified Lockheed description of the PAC 3 notes that, "Lockheed Martin is producing the combat-proven Patriot Advanced Capability-3 (PAC-3) Missile under production contracts from the U.S. Army Air and Missile Defense Program Executive Office and multiple international customers. The PAC-3 Missile is being incorporated into the Patriot air defense system. The 'hit-to-kill' PAC-3 Missile...defeats the entire threat: tactical ballistic missiles (TBMs), cruise missiles and aircraft. The PAC-3 Missile is a quantum leap ahead of any other air defense missile when it comes to the ability to protect the Warfighter in their defining moments. The PAC-3 Missile is a high velocity interceptor that defeats incoming targets by direct, body-to-body impact. PAC-3 Missiles, when deployed in a Patriot battery, will significantly increase the Patriot system's firepower, since 16 PAC-3s load-out on a Patriot launcher, compared with four of the legacy Patriot PAC-2 missiles. ... The PAC-3 Missile Segment upgrade consists of the PAC-3 Missile, a highly agile hit-to-kill interceptor, the PAC-3 Missile canisters (in four packs), a fire solution computer and an Enhanced Launcher

Electronics System (ELES). These elements are integrated into the Patriot system, a high to medium altitude, long-range air defense missile system providing air defense of ground combat forces and high-value assets. The PAC-3 Missile uses a solid propellant rocket motor, aerodynamic controls, attitude control motors (ACMs) and inertial guidance to navigate. The missile flies to an intercept point specified prior to launch by its ground-based fire solution computer, which is embedded in the engagement control station. Target trajectory data can be updated during missile fly out by means of a radio frequency uplink/downlink. Shortly before arrival at the intercept point, the PAC-3 Missile's on board Ka band seeker acquires the target, selects the optimal aim point and terminal guidance is initiated. The ACMs, which are small, short duration solid propellant rocket motors located in the missile forebody, fire explosively to refine the missile's course to assure body-to-body impact.”

<http://www.lockheedmartin.com/us/products/PAC-3.html>

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<sup>124</sup> According to Sean O’Connor, the breakdown of Iranian missile sites is: Active SAM Sites (47) – 6 SA-5, 2 SA-6, 4 SA-15, 7 HQ-2, 22 HAWK; Inactive SAM Sites (34) – 3 SA-6, 1 SA-15, 15 HQ-2, 15 HAWK; Identified Facilities – 33 EW sites, 1 SA-6 garrison, 1 SA-15 garrison, 2 SAM Training Complexes.

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<sup>128</sup> “Radar versus Stealth: Passive Radar and the Future of U.S. Military Power,” Arend Westra, NDU Press, 4<sup>th</sup> Quarter 2009, <http://www.ndu.edu/press/lib/images/jfq-55/22.pdf>.

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<sup>130</sup> “Kremlin Bans Sale of S-300 Missiles to Iran.” BBC. September 22, 2010. <http://www.bbc.co.uk/news/world-europe-11388680>

<sup>131</sup> “Iran Upgrading S-200 Air Defense System,” *Tehran Times*, September 28, 2012. <http://tehrantimes.com/politics/101865-iran-upgrading-s-200-air-defense-system>.

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<sup>133</sup> Jeremy Binnie, “Iran Claims to Have Mobile S-200 Sams,” *IHS Jane’s* 360, July 9, 2013. <http://www.janes.com/article/24313/iran-claims-to-have-mobile-s-200-sams>

<sup>134</sup> “Russia Offers Iran new Replacement for S-300,” *Ria Novosti*, June 22, 2013. <http://en.ria.ru/world/20130622/181809995/Russia-Offers-Iran-New-Replacement-for-S-300--Paper.html>

<sup>135</sup> Nader Uskowi, Iran Test Fires S-200 missile, February 17 2008, <http://www.uskowioniran.com/2008/02/iran-test-fires-modified-s-200-missile.html>; “The optimized version of Iranian S-200 SAM has stunned Russian experts,”

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<sup>155</sup> Note that other sources give different numbers of both IRGC and IRIN vessels. The above list is not exhaustive, and given the nature of many of these craft – machine guns, MLR system, and mine-laying capacity – Iran could convert dual-use pleasure and commercial craft in times of war.



<sup>156</sup> Any classification of Iran's missile arsenal evades order and clarity. Most reports about Iran's missile express uncertainty about parts of Iran's program, and many reports contradict each other, at least partly, either deliberately or not. One source sheds some light into Iranian anti-ship missile capabilities, but cannot be seen as more than an rough indication:

<b><u>Iranian designation</u></b>	<b><u>Designation in country of origin</u></b>
<i>Fajr-e-Darya</i>	<i>FL-6 (Chinese)</i>
<i>Kowsar</i>	<i>FL-8 (Chinese)</i>
<i>Nasr</i>	<i>FL-9 (Chinese)</i>
<i>Tondar</i>	<i>C-802 (Chinese)</i>
<i>Noor</i>	<i>HY-2 (Chinese)</i>
<i>Ra'ad</i>	<i>HY-2/C-802<sup>156</sup></i>

<sup>157</sup> <http://www.fas.org/man/dod-101/sys/missile/row/c-801.htm>

<sup>158</sup> Jane's Fighting Ships, Administration, Iran, February 19, 2007.

<sup>159</sup> Jane's World Navies, *Iran*, August 28, 2012.

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<sup>161</sup> "Threats against Iran Derive From Extent of American Presence in the Region," Iran Daily Brief, October 29, 2012. <http://www.irandailybrief.com/2012/10/29/threats-against-iran-derive-from-extent-of-american-presence-in-the-region/>

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<sup>186</sup> Note that this is likely the origin of Iran’s “passive defense” strategy, entailing splitting its coastal forces among many small anchorages and coves. The objective is to camouflage the vessels and their supplies to wait out an American strike and then engage in asymmetric attacks on tankers or unsuspecting American warships. Whether Iran has actually drilled this dispersal strategy, or if it is merely a possibility IRGC commanders have aired for public consumption, is unknown.

<sup>187</sup> No reliable data exist on the size and number of Iran’s smaller independent formations.

<sup>188</sup> There are reports that the lighter and smaller formations in the regular army include an Airmobile Forces group created since the Iran-Iraq War, and which includes the 23th Special Forces Division, which was formed in 1993-1994, and the 55th paratroop brigade. There are also reports that the regular army and IRGC commando forces are loosely integrated into a corps of up to 30,000 men with integrated helicopter lift and air assault capabilities. These reports are not correct. Note that detailed unit identifications for Iranian forces differ sharply from source to source.

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It is unclear that such identifications are accurate, and now dated wartime titles and numbers are often published, sometimes confusing brigade numbers with division numbers.

<sup>189</sup> Although such Special Forces and commando units are likely to have a significant role in an asymmetric war as well. They would likely form the elite backbone of any territorial defense insurgent movement, training and coordinating regular army, Basij, and civilian-based forces.

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