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The Arab Gulf States and Iran: Military Spending, Modernization, and the Shifting Military Balance

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Photo: STR/AFP/Getty Images

The military balance between Iran, its Arab neighbors, and the United States has been a critical military issue in the Middle East since at least the rise of Nasser in the 1950s. The risks this arms race presents in terms of a future conflict have not diminished with time, and many elements of the regional arms race have accelerated sharply in recent years.

This report compares a range of sources to trace the history of the Gulf arms race in terms of military expenditures, arms transfers, and comparative rates of military modernization. In the process, it examines the economic burden on the Gulf states of these military expenditures and arms transfers, the recent shifts in the balance in terms of the major elements of conventional warfighting capability, and the impact of a steady shift towards options for asymmetric warfare.

It draws heavily on both official open-source reporting by the United States government and the work of major research centers like the International Institute for Security Studies (IISS) and the Stockholm International Peace Research Institute (SIPRI), as well as variety of other think tanks and commercial research centers. It notes the critical role of the United States and European forces like those of Britain and France in shaping the balance, as well as the emerging role of Russia, but focuses on the detailed trends in the military spending, arms transfers, and force modernization in Iran, Iraq, and the Southern Arab Gulf states - Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

The Forces That Shape the Gulf Arms Race **Pages 22-35**

The data in this report can only tell part of the story. While Iran is sometimes perceived as the military "hegemon" of the Gulf, the spending and modernization data show that many of Iran's conventional military forces are equipped with aging, battle-worn, and mediocre weapons that make it something of a military museum. Iran has not had good access to modern weapons since the fall of the Shah, and the Arab Gulf forces are generally equipped with the most modern and effective weapons available from the U.S. and Europe and would be supported by the U.S., Britain, and France in any serious warfighting contingency.

At the same time, Iran has made major advances in fielding a large mix of ballistic and cruise missiles, and asymmetric forces that can threaten shipping throughout the Gulf and in the Gulf of Oman and Red Sea. It also is expanding its military influence and presence in Lebanon, Syria, Iraq, and Yemen.

Iran has also skillfully exploited a combination of asymmetric warfare, arms transfers, and support of pro-Iranian regimes and non-state actors. It has taken advantage of the self-destructive divisions within an Arab world that failed to create an effective structure of alliances, wasted much of the money it has spent on military forces and arms transfers, and is now divided by the Saudi-UAE led boycott of Qatar.

It has also exploited civil conflicts and divisions in Lebanon, Syria, Iraq, Bahrain, and Yemen. The fact the U.S.-led invasion of Iraq in 2003 destroyed Iraq's capability to act as a military counterweight to Iran and that lack of any effective U.S. plan to stabilize Iraq has triggered two major rounds of fighting and divisions between its Sunnis and Shi'ites, Arabs and Kurds, regions, and tribal groupings – still leave Iraq deeply divided despite the break-up of the ISIS "caliphate."

Outside powers can only do so much to help a divided mix of Arab states and forces. U.S. and European power projection forces can add military capabilities that help guarantee an Arab victory in any serious conventional conflict with Iran, or open war with terrorists and extremists, but they cannot compensate for Arab dysfunctions, divisions, and self-inflicted wounds.

Moreover, the risk of a future conflict is all too real and not simply because of the tensions between Iran and the Arab Gulf states. On July 22nd, Iran's President Hassan Rouhani warned the U.S. that, "Mr. Trump, don't play with the lion's tail, this would only lead to regret. America should know that peace with Iran is the mother of all peace, and war with Iran is the mother of all wars. You are not in a position to incite the Iranian nation against Iran's security and interests." The next morning, President Trump replied with a Tweet in full capitals stating that,

> "NEVER, EVER THREATEN THE UNITED STATES AGAIN OR YOU WILL SUFFER CONSEQUENCES THE LIKES OF WHICH FEW THROUGHOUT HISTORY HAVE EVER SUFFERED BEFORE. WE ARE NO LONGER A COUNTRY THAT WILL STAND FOR YOUR DEMENTED WORDS OF VIOLENCE & DEATH. BE CAUTIOUS!"

No one can safely dismiss such rhetoric as political posturing over the fact the U.S. is imposing steadily more serious economic sanctions on Iran. The history of war is as much the history of unintended conflicts and escalation as of deliberate attacks. There have already been far too many such wars in the Middle East, and the current arms race has too long and dangerous a history to ignore.

Clashes with Iran in the Gulf, struggles for influence in Iraq and Syria, and the war in Yemen all act as warnings that new rounds of conflict are possible. The Iranian reactions to the U.S. withdrawal from the JCPOA nuclear agreement, the growing tensions between the Arab Gulf states, the boycott of Qatar, and the unstable outcome of the fight against ISIS and the Syrian civil war also exacerbate the potential for conflict.

A. Regional Military Expenditures: IISS and SIPRI Data — Pages 36-53

The trends in military expenditures form the initial core of this analysis, and there are important limits to the data. Neither the Arab states nor Iran provide anything resembling credible reporting on their military expenditures and arms transfers. This lack of transparency has helped lead to sharply conflicting estimates – or simply no estimate – of the spending of key states, sharply encouraged waste and corruption, and sharply limited regional analysis of the military balance, and the effectiveness of national forces.

However, an analysis of the reporting by two key think tanks – the International Institute of Strategic Studies (IISS) and the Stockholm International Peace Research Institute (SIPRI) – and IHS Janes reflects estimates that the Arab GCC states spent $95 to $128 billion on military forces in 2017. This is six-to-nine times their estimate that Iran spent $15 to $16 billion. This also reflects a consistent trend in such estimates. The Arab Gulf states have sharply outspent Iran for decades.

Estimate of Gulf Military Effort in 2017

	$US 2017 Millions			% of GDP		
	IISS	**SIPRI**	**IHS Janes**	**IISS**	**SIPRI**	**IHS Janes**
Iran	16,035	15,548	16,201	3.75	-	3.85
Bahrain	1,480	1,397	1,544	4.37	-	4.95
Kuwait	5,710	6,831	7,107	4.83	-	4.95
Oman	8,687	8,687	9,901	12.08	-	11.51
Qatar	6,120	-	5,676	-	-	3.38
Saudi Arabia	76,678	69,413	52,098	11.30	-	7.66
UAE	30,000	-	19,760	-	-	-
Total GCC	128,675	-	95,086	-	-	-
Iraq	19,271	7,416	7,783	10.00	-	4.23
Total Arab	147,946	-	102,869	-	-	-

It is likely that the true total for both the Arab GCC states and Iran was significantly higher than these think tanks report, but this would not change the relative Arab lead. Moreover, both the think tank data, and the U.S. official data in the next section of this report strongly argue that the U.S. complaints about Arab Gulf burden sharing are quantitative nonsense.

All the Arab Gulf states spend far more of their economies on military forces than the 2% of GDP goal set by NATO, and far less than the 3.11% the IISS estimates is spent by the U.S., the 3.10% spent by Russia, and the 1.26% spent by China

Three such states – Iraq, Oman, and Saudi Arabia – spend more than 10%. While the Qatar and the UAE lack the integrity and transparency to report meaningful data on their military spending, it is likely that both obligated close to 10% or more in 2018 – driven by a surge in Qatari arms buys and the UAE's war in Yemen. These are levels of military spending that threaten the economic development and reform efforts in each such state that are critical to internal stability and fighting extremism and terrorism.

B. Country Military Expenditures: U.S. State Department Data **Pages 54-65**

The U.S. State Department. provides a comprehensive estimate of military spending, arms transfers, and military personnel in an annual document called ***World Military Expenditures and Arms Transfers (WMEAT)*** **(https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm).** This document provides an authoritative U.S. official estimate of the key financial trends shaping military developments on a global basis and provides a range of different ways of calculating the military burden for each country. It involves a truly massive analytic effort. As a result, the latest edition was issued at the end of 2017, but only covers trends and developments through 2015.

In broad terms, however, it supports the trends in the IISS, SIPIRI, and IHS Janes estimates. The data for 2015 reflect a lower level of military effort than 2017 but indicate that the Arab Gulf states spent 11.3 times more than Iran (12.9 times if Iraq is included) and could buy far more capable forces if they took and integrated approach to force planning focused on their key missions, if they were less divided and dysfunctional, and if the divisions between and within the Arab states did not offer Iran so many self-inflicted wounds to exploit.

WMEAT Estimate of Gulf Military Effort in 2015

	$US 2015 billions	% of GDP
Iran	**11.60**	**3%**
Bahrain	1.47	4.7%
Kuwait	5.50	4.8%
Oman	9.88	14.2%
Qatar	5.17	3.1%
Saudi Arabia	84.5	13.1%
UAE	25.0	6.8%
Total GCC	**131.2**	**-**
Iraq	18.00	10.0%
Total Arab	**149.2**	**-**

At the same time, the WMEAT data also again indicate that President Obama and President Trump's criticisms of Arab Gulf burden sharing were based on remarkably bad and misleading U.S. staff work. The 2015 data precede the cost of the Yemen War and the impact of the boycott of Qatar, but every Arab Gulf state spent at least 3% of its GDP, most spent close to 5% or more, and two (three including Iraq) spent well over 10% of their GDP.

C. Arms Transfers: SIPRI Estimates — Pages 66-103

The data on world arms transfers are notoriously unreliable, and lack full comparability and clear definitions. The problems in such estimates are touched upon in this section, but it also makes it clear that SIPRI has created a relatively consistent data base which focuses on major weapons transfers.

Like the data on military expenditures, the SIPRI data indicate that the Arab Gulf states have had a massive advantage over Iran in such sales, and one reinforced by access to the most modern weapons and military technology – although the impact of this advantage has been sharply reduced by a lack of integration and interoperability and focus on key missions in deterring and fighting Iran.

Later in this section, however, there are tables showing the shifts in the regional balance that occurred because of the U.S. invasion of Iraq – and the U.S. failure to create a stable regime in that country. The U.S. mistakes in invading Iraq, and the invasion's aftermath – may well have done more to empower Iran between 2003 and 2018 than the mix of Gulf Arab mistakes.

D. Global Arms Transfers: U.S. Government Estimates — Pages 104-116

The best unclassified estimate of arms transfers is provided in a declassified official U.S. estimate of arms transfers in dollars provided by the U.S. Congressional Research Service (CRS) in ***Conventional Arms Transfers to Developing Nations, 2008-2015***, and additional data are provided by the U.S. State Department in WMEAT.

There are many issues in making such estimates that need to be examined in depth, but it is clear that the Arab Gulf nations have spent far more on arms imports than Iran and have had far better access to advanced arms and military technology. The summary trends are shown below:

Conventional Arms Transfers to Iran and the Arab Gulf States 2008-2015
(Gulf Arms Agreements & Deliveries in millions current USD)

	2008-2011	2012-2015	Total
New Arms Agreements			
Arab GCC	78,100	84,400	162,500
Iran	300	600	900
Ratio [GCC:Iran]	260:1	140.7:1	180.6:1
Iraq	5,200	23,900	29,100
Actual Arms Deliveries			
Arab GCC	19,200	30,400	49,600
Iran	300	100	400
Ratio [GCC:Iran]	64:1	304:1	124:1
Iraq	3,700	10,300	14,000

Many Arab imports, however, seems more oriented towards getting the most advanced weapons rather than the ones needed to best deal with the threat posed by Iran and extremism. While most Arab imports are technically interoperable, they lack standardization and come from a wide range of supplier countries with different mixes of suppliers in each state – some of which cannot supply interoperable arms. This approach to purchasing is wasteful, and the lack of transparency almost certainly encourages serious levels of corruption.

E. U.S. Government Reporting of U.S. Arms Sales **Pages 117-133**

Most arms exporting governments do not provide summary or detailed data on their overall arms transfers and sales to the Gulf or other importing states. The U.S. government is an exception. It reports such data on U.S. arms transfers and sales through its Department of Defense Security Cooperation Agency (DSCA). These reports provide data on U.S. arms sales back to 1950, and show the actual current dollar value of such transfers, aid, and sales.

The data in **Figure E1** to **Figure E-10** are particularly striking in showing the major levels of increase in U.S. arms sales and deliveries since 2001, and the high rate of further increase after 2010:

Total U.S. Arms Sales in $US Billions

Country	Agreements			Deliveries		
	1950-2017	2001-2017	2010-2017	1950-2017	2001-2017	2010-2017
Bahrain	3.226	1.518	0.667	2.616	1.454	0.509
Kuwait	17.631	10.044	6.654	12.547	6.023	3.250
Oman	3.868	3.675	2.598	1.942	1.758	0.982
Qatar	24.902	24.896	24.865	0.687	0.680	0.670
Saudi Arabia	173.229	92.723	76.038	105.883	32.479	21.813
UAE	22.022	21.759	10.620	6.418	6.415	5.505
Total GCC	**244.880**	**154.615**	**121.262**	**130.093**	**48.809**	**32.729**
Iraq	18.361	18.349	13.649	10.678	10.665	9.085
Iran	10.716	-	-	10.705	-	-

In addition, the Department of Defense Security Cooperation Agency (DSCA) submits every proposed major arms sale request to the State Department and the Congress for review. It reports these requests in public, and on the Web. This transparency provides one of the few reliable pictures of the true nature and cost of such sales. Many other sales are not reported, are reported inaccurately, or are announced in ways designed to encourage further sales or boost a given weapon, manufacturer, or political position.

It is not possible to analyze more than a few individual sales in this report, but **Figure E-11** provides a chronological summary of these reports on individual arms sales since the inauguration of President Trump. It shows just how much of the flow of U.S. arms sales consists of the services necessary to support Arab strategic partners in arming and operating their weaponry, the level of modernization taking place in existing systems, and the emphasis placed on sustainability and making weapons transfers effective in actual combat.

It is also clear that many sales provide maintenance, training, and other services as well as support equipment, facilities, etc. This is a key part of U.S. arms transfers under the FMS program. FMS sales are structured to ensure that the buyer country acquires the capability to properly support and operate the arms it buys and avoid hollow or showpiece buys of major weapons.

F. Recent U.S. Arms Sales Under President Trump — Pages 133-146

The size of U.S. arms sales to Saudi Arabia and the Arab Gulf states since President Trump took office has become the subject of significant controversy for reasons that go far beyond the massive mistakes the U.S. is making in assessing the burden sharing efforts of its Arab strategic partners. President Trump has placed a heavy emphasis on U.S. arms sales to Saudi Arabia and other Arab Gulf states since he took office. While politics are politics and exaggerated claims are the primary bipartisan rule of political truth, he also has sharply exaggerated the size of U.S. sales, the growth in such sales since he took office, and their impact on creating jobs.

In fairness, various Presidents from both parties have exaggerated the value of such sales ever since the U.S. debate over the sale of the AWACS to Saudi Arabia began in 1981. Nevertheless, President Trump has pushed such claims to unusual levels.

He first took credit for such sales proposals in a meeting with Mohammed Bin Salman, the Crown Prince of Saudi Arabia, on March 20, 2018. He displayed two poster boards during televised coverage of the meeting. One claimed $12.5 billion in "finalized" arms sales to Saudi Arabia, including $3 billion worth of Standoff Attack missile sales, $533 million in CH47 sales, $533 million in Threat Detection Aerostats, $880 million in M1 tank upgrades, $63 million in artillery shells, $889 million worth of Harpoon II missiles, $6 billion worth of MMSC frigates, and $645 million worth of Joint Standoff missiles.

The second showed "sales pending" and included $13 billion worth of THAAD ABMs, $3.8 billion worth of C-130s, $1.4 billion worth of Poseidon MPA/AWACS aircraft, and $1.2 billion worth of Bradley armored fighting vehicles. In displaying these sales, the President took credit for creating 40,000 jobs and some $19.4 billion in deals, although almost all had been planned or negotiated by President Barack Obama and were not firm sales.

Many of the problems with these claims were summarized in an article by Glenn Kessler in the *Washington Post* on October 22, 2018. (https://www.washingtonpost.com/politics/2018/10/22/trumps-claim-jobs-saudi-deals-grows-by-leaps-bounds/?utm_term=.440c2b1b7226).

Kessler noted that,

> The White House never provided an accounting of how the 40,000-jobs figure was determined, so we are dubious that it's a reliable number. But even if we were to generously apply that same metric to $110 billion — one job for every $485,000 spent — you end up with only about 225,000 jobs... Trump on March 20 mentioned THAAD — the Terminal High Altitude Area Defense anti-ballistic missile system. The Saudis let a September deadline for the deal with Lockheed Martin lapse, despite a 20 percent price cut given by Trump. So, for now, he cannot even count on the THAAD, which was one of the biggest elements of the $110 billion wish list.
>
> He also reported that the President then made a series of steadily escalating claims about both the value of such sales and the number of jobs they created -- virtually ignoring the relative importance of any sale in enhancing Saudi and U.S. security, ignoring every aspect of the burden military spending placed on Saudi ability to implement the civil reform plans essential to its stability and fight against extremism, and ignoring the fact his figures bore no linkage to the number of new sales actually being reported to Congress:
>
> - *"It's $110 billion. I believe it's the largest order ever made. It's 450,000 jobs. It's the best equipment in the world."* **— President Trump, in remarks to reporters, Oct. 13, 2018**
> - *"$110 billion in purchasing. It's 500,000 jobs, American jobs. Everything's made here."* **— Trump, in an interview with Trish Regan of Fox Business News, Oct. 16**
> - *"Who are we hurting? It's 500,000 jobs. It'll be ultimately $110 billion. It's the biggest order in the history of our country from an outside military."* **— Trump, in an interview with Stuart Varney of Fox Business News, Oct. 17**
> - *"I would prefer that we don't use, as retribution, canceling $110 billion worth of work, which means 600,000 jobs."* **— Trump, during a defense roundtable at Luke Air Force Base, Oct. 19**
> - *"So now if you're talking about — that was $110 billion — you know, you're talking about over a million jobs. You know, I'd rather keep the million jobs, and I'd rather find another solution."* **-- — Trump, in additional remarks to reporters after the roundtable, Oct. 19**
>
> ... To be fair, he appeared to be saying that all of the deals he struck in Saudi Arabia — which he valued at $450 billion — would create 1 million jobs. But that's just as fanciful. (We had earlier documented that the commercial agreements announced after his 2017 trip to the kingdom were mostly smoke and mirrors, with many of the purported deals aimed at creating jobs in Saudi Arabia, not the United States. At the time, Trump claimed they were worth $350 billion.)
>
> ... the official White House statement said when the deal was signed: "This package demonstrates the United States' commitment to our partnership with Saudi Arabia, while also expanding opportunities for American companies in the region, potentially supporting tens of thousands of new jobs in the United States... According to a confidential 2017 document of all of the military sales agreements reviewed by The Fact Checker, most of the items on Trump's $110 billion list did not have delivery dates or were scheduled for 2022 or beyond. There appeared to be few, if any, signed contracts. Rather, many of the announcements were MOIs — memorandums of intent. There were six specific items, adding up to $28 billion, but all had been previously notified to Congress by the Obama administration.
>
> Moreover, the Aerospace Industries Association says that in 2016, there were 355,500 manufacturing jobs supported by the entire defense and national security industry, generating $146 billion in annual exports. So it's hard to imagine that $110 billion in deals with Saudi Arabia, spread over a decade, would significantly add to that total, let alone more than double it. For context, the U.S. economy is worth about $20 trillion a year.

> "Tens of thousands" is much, much lower than 600,000. Even that might be a stretch, though note that the statement uses the phrase "potentially supporting," rather than "creating," jobs. That means the White House could have been counting not just new factory workers but also secondary jobs resulting from the "feedback" of employed defense workers. (In theory, each dollar spent by a newly employed person reverberates through the economy, creating jobs for dentists, librarians, bread bakers, farmers, bartenders and so forth.)
>
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If anything, Kessler understates the exaggerations involved regarding job creation, many of which can scarcely be blamed upon the President. The Office of the Secretary of Defense has meaningful factual support for most of the dollar to job estimates it issues, and the actual number of jobs per sales dollar steadily declines over time as high technology equipment comes to rely more and more on highly skilled labor, robotics, and other forms of automation.

As for actual sales, **Figure F-1** provides an official sale-by-sale chronology – taken from the reporting by the Defense Security Cooperation Agency (DSCA) of the Department of Defense of the proposed (not final) arms sales to all of the Arab Gulf states, including Iraq, from the date of the President's inauguration through December 1, 2018 – a period that covers all the claims listed by Kessler.

Even if one counts all of these proposed sales as actual sales and ignores the fact most were proposed under President Obama, the totals were only $26.9 billion in 2017 and $5.8 billion in 2018, for a total of $32.8 billion. The portion of these sales that would be made to Saudi Arabia would be far more limited: $20.1 billion.

The good news is that some of the potential sales listed in **Figure F-1** do reflect an emphasis on key missions like air and ballistic missile defense, on fully supporting advanced multirole fighters, and some limited emphasis on forces that can counter Iran's asymmetric naval threats. The overall patterns in Arab Gulf arms buys also reflect a shift towards buys that can increase true operational interoperability, create more effective warfighting cooperation with U.S. power projection forces, and emphasize deterrent and warfighting capabilities rather than prestige buys and the military "glitter factor."

Figure F-1 also shows, however, that the total size of recent U.S. arms sales is not, however, anywhere near $100 billion to $125 billion. These numbers bear no clear relation to reality. Furthermore, the data in **Figure F1** show that even if one disregards the fact DSCA reports proposed – not actual – U.S. arms sales, and that the totals in the Figure include also reported sales that have occurred since President Trump's Inauguration – even though most such sales were proposed before President Trump took office – the totals were only $26.9 billion in 2017 and $5.8 billion in 2018, for a total of $32.8 billion.

So far, only about half these total sales to all Arab Gulf states seem likely to be final. The Saudi portion also totaled $17.2 billion in 2017 and $2.9 billion in 2018, for a total of $20.1billion. These are still massive potential purchases, but they fall far short of some political claims.

G. Force Numbers and Trends — Pages 147-154

Given the patterns in total military spending and arms sales, it is scarcely surprising that the broad trends in force, personnel, and equipment numbers show that the Southern Arab Gulf states have a clear lead in major weapons numbers in most areas of conventional arms. Iraq is still a limited power, and Iran's only lead is in manpower. It should be noted that this figure draws on IISS sources and IHS Janes. Other sources often have different figures.

Iran did make a major recovery in some areas of major land force weapons numbers from 1991 to 2003 and beyond, but it has not sought major increases in numbers since 2003 and has focused more on weapons quality. It has, however, retained a massive force of towed artillery and towed/SP rocket launchers. It has increased its air strength, but the numbers shown do not reflect fully operational or sustainable forces. Iran has modified many systems to keep them operational, but the quality of such efforts is highly uncertain. The same is true of many surface-to-air missile systems, and inventory age is a problem in ensuring some such systems remain operational and reliable.

G. Military Modernization — Pages 155-163

As might be expected from the patterns in arms transfers, the patterns of modernization in the Arab Gulf states and Iran reflect the impact of the military expenditures and arms transfers discussed earlier and provide broad indicators of the relative rise in total Gulf Arab force strength and capability relative to Iran.

A close examination of Iran's land, air, and sea-based military modernization efforts reveal that key Iranian force systems are obsolete, obsolescent, or of relatively low quality. Many systems date back to the Shah or were worn during the Iran-Iraq War. Non-operational rates are likely high for many of these systems, and combat sustainability is likely low as well.

However, much depends on how they are interpreted. Arms transfers are only useful to the extent they actually result in useful military modernization in key mission areas that enhance deterrence and warfighting capability relative to a potential threat or enemy. Success goes far beyond making the right choices in weapons and technology. It means creating effective, truly combat ready, forces that can carry out the right missions.

Each section of the analysis shows that the Arab Gulf States have used their military spending and arms imports to develop a decisive overall edge in conventional weapons and modernization over Iran. At the same time, the Arab Gulf effort has lacked coherence and a focus on the right capabilities and missions and has put far too many resources into conventional airpower at the expense of other mission priorities.

Iran's ballistic and cruise missiles, asymmetric warfare capabilities, improving land-based air defenses, and use of strategic partners and sub-state actors can scarcely be ignored. Iran has exploited Arab political divisions using political support and elements of its IRGC Quds Forces, money, weapons transfers, volunteers, and train and assist efforts with great success.

There is no clear terminology for such efforts. The term "hybrid warfare" can be stretched to describe such Iranian efforts, but most do not involve any meaningful direct Iranian intervention in combat. If anything, they follow the model advocated by Sun Tzu of using force indirectly and in ways short of war to achieve a strategic objective.

Iran has focused on exploiting the internal and national divisions and conflicts within Arab states. It has backed non-state actors like Hezbollah in Lebanon, Hamas in Gaza, Shi'ite factions and militias and some Kurdish elements in Iraq, the Houthi in Yemen, and even Sunni extremist groups like elements of Al Qaida. Its efforts have generally been consistent and well-focused, while Arab efforts have consisted largely of money transfers that have been grossly inconsistent, conspiracy oriented, and often conflicting – such as the Saudi and Qatari efforts in Syria.

Far too often, the burden of direct military support has fallen on the U.S. and its airpower and ground force train and assist efforts – areas where the U.S. has had military success but often failed to create effect political, governance, and civil efforts and achieve any broad strategic success. The U.S has demonstrated the limits to what an outside and very different outside culture can accomplish ever since 2003, and Iran has been able to skillfully exploit the resulting power vacuum without having to go to war.

Iran has also steadily procured weapon systems that enable it to pose an outsized asymmetric threat relative to its conventional military strength, its poor economy, and its lack of access to world markets. Iran has focused on creating a major ballistic and growing cruise missile/UAV threat, improved land-based air defense, and a naval-missile-air capability to attack maritime forces and coastal targets. It has also used its build-up of its strategic partners, usually sub-state actors, to both expand its regional influence and create a potential strategic buffer to any land attack through in Iraq.

The following sections of this report reflect many areas of Gulf Arab success in modernizing individual national forces, but the divisions in the Gulf Arab states, and their somewhat mechanical emphasis on increasing their conventional forces – over-emphasizing air a combat and attack capabilities in the process – have failed to respond effectively to Iran and left them far too dependent on the U.S. and European aid for the money they area spending.

Key areas of overall Gulf Arab weakness – which do vary sharply by country where some countries have created highly effective individual force elements – include:

- Internal divisions and bickering in every aspect of military development and activity.
- Ambitious strategic conferences, meetings, and pro forma alliances with little real substance.
- De facto over-reliance on U.S. and European power projection and actual command and battle management in a serious conflict, as well as U.S. led train and assist efforts in fighting extremist/terrorist movements and dealing with internal Arab state conflicts and sectarian and ethnic violence.
- Creation of relatively static land forces designed for national territorial defense against conventional enemy forces – although some Special Forces, counterterrorism forces, and other elite elements in specific, but few, countries are very good.
- Reliance on limited and often set-piece formal exercises and token common training with limited relation to probable war fighting scenarios.
- Weak real-world emphasis on joint warfare doctrine, training, real-world capability, and day-to-day operations.
- Spending far too much on prestige buys of fighter-attack aircraft and advanced air-launched munitions without creating adequate integrated and/or advanced BM/C^4 (battle management/command, control, communications and computer), IS&R (intelligence, surveillance, and reconnaissance), refueling, maritime patrol and sensor, and AWACs (airborne air control and warning system) capability.
- Erratic nation-by-nation, land-based air defense forces and modernization efforts that are not properly integrated, often poorly deployed or used to protect leadership cadres.

- Failure to buy the naval systems and other forces necessary to directly address the threat posed by Iran asymmetric naval-air-missile threat to Gulf shipping inside the Gulf, at the Strait of Hormuz, in the Gulf of Oman, and increasingly at the Bab el Mandab and in the red Sea. This includes a lack of adequate regular and smart mine warfare capability, capability to deal with IRGC guided missile and high explosive attack boats, capability to defend against the fully range of Iranian anti-ship missile, inadequate naval-air joint warfare and surveillance and targeting capability, lack of adequate and integrated BM/C^4 capability, and poor overall naval readiness and real-world training capability within a number of Gulf Arab countries.
- Lack of real-world progress in acquiring ballistic missile and cruise missile/UAV/UCAV defenses that must be integrated to be cost-effective, require a common layered architecture emphasizing endo-atmospheric defense, and which will become progressively more import if Iran succeed in deploying precision-guided ballistic and cruise missiles or deploys nuclear or CBW warheads.
- Serious gaps in some national real-world manpower and readiness capabilities to sustain serious combat operations.
- Establishing ambitious counterterrorism/counterextremism alliances and centers, and major new facilities, that generally have little real effectiveness and operational value. Limited progress in addressing the internal sectarian, ethnic, and tribal divisions; ideological/education; and youth career and employment problems that can aid terrorist/extremist recruitment.
- A lack of transparency in national security plans, programs, and budgets that allows Gulf think tanks and outside analysts to make a proper contribution, provides independent outside criticism and review, and limits waste, fraud, abuse, and corruption.

That said, it is important to note that there have been many areas of positive force development in the Arab Gulf forces that do give their forces important advantages in war fighting, and that *currently* shift the balance toward the Arab side to the extent a war escalates to serious levels of combat involving strikes on key bases and civilian targets. These areas are summarized in the following sections on comparative force modernization.

H. Land Force Modernization — Pages 164-177

This section highlights Iran's lack of overall force modernization by highlighting two key aspects of the overall trends in land force modernization: The trends in main battle tank (MBT) and artillery modernization since the beginning of the Iran-Iraq War. These two trends act as summary measures of the ability to use land forces to seize or defend space and conduct maneuver warfare. They have been critical elements of the fighting in the Iran-Iraq War, the first Gulf War in 1990-1991, and the invasion of Iraq in 2003.

However, conventional land forces and heavy weaponry like armor and artillery weapons have not dominated civil fighting and counterinsurgency in Iraq since 2003, the fighting in Syria, or the fighting in Yemen. Iran's land forces are shaped largely for defense in depth and seem to have limited long-range maneuver capability and uncertain survivability in the face of Arab Gulf and allied airpower. Any major Iranian offensive would how have to maneuver through Iraq to attack any Arab Southern Gulf country or attempt amphibious operations where Iranian training is limited and unrealistic and Iran would have to rely heavily on vulnerable ferries and port facilities to move major forces.

The open source data available also do not support analysis of what portion of Iran's MBT systems are operational, nor does it assess Iran's ability to conduct extended maneuver warfare, provide field repair capability and deal with inoperability, and Iran's ability to provide any effective long-distance logistic capability to support serious maneuver combat.

I. Air Force Modernization — Pages 178-194

This section highlights the contrast between the high rate of Arab Gulf modernization and Iran's reliance on aging, worn, and mediocre US, Chinese, and Soviet air systems, and comparative fixed-wing combat aircraft strength across the region.

Although the IISS reports Iran maintains a total fixed-wing combat aircraft inventory similar to that of Saudi Arabia or Israel, these numbers are highly uncertain and involve largely obsolescent, aging, and mediocre systems. Iran's readiness and force quality remain major issues. It's unclear whether *and when* Iran's current rate of air modernization, which has focused on domestic production legacy aircraft, can offset the quality and sustainability problems in its aging Western-supplied aircraft and the qualitative superiority of U.S. and Southern Gulf Forces. Iran's designs have so far been largely testbeds, production has been limited, and unless Iran can buy far more advanced designs from Russia or eventually China, it is unclear when Iran's air force can rival those of its Gulf neighbors – much less the U.S. – at any point in the near term.

The key issue for the Arab Gulf is not combat aircraft numbers, or quality. It is transforming its purchases into fully capable modern air forces. Here, the Saudi and UAE air force are learning from their war in Yemen, although it is clear that even they still have some ways to go.

K. Land-Based Air/Missile Defense Force Modernization — Pages 195-203

At this point in time, Iran is still dependent on surface-to-air missiles whose origin dates to the Shah and Vietnam War era and its own upgrades to its radar sensors and BM/C^4 system. For the time being, the Arab Gulf states have a major *current* advantage in modern land-based air defense missiles, some of which have tactical anti-ballistic missile capabilities. Several Arab Gulf countries have fully modern systems like the newest Patriot surface-to-air and tactical missile defense systems and are making major improvements in their radar sensors and BM/C^4.

Several Southern Arab Gulf states – notably Saudi Arabia, Qatar, and the UAE have shown an interest in buying THAAD or standard theater missile defense systems. This is a key priority for the future. The U.S. has deployed cruisers equipped with standard theater missile defense systems to the Gulf in the past, but Iran's build-up of layered ballistic and missile forces, and UAVs/UCAVs requires an integrated Gulf wide set of layered missile and air defenses.

As noted earlier, however, it is unclear whether and when the Arab Gulf states will buy theater missile defense systems, and whether their national systems will have an effective architecture and be properly integrated. There is an open-ended character to this part of the regional arms race, compounded by uncertainty over the level and timing of Iran's ability to give its conventionally armed missiles precision strike capability, and whether Iran will deploy some form of CBRN warheads.

However, Iran is taking delivery on a far more modern S-300 system and does have some more modern TOR-M short-range systems for point defense. It also is acquiring far more advanced radars and command and control systems, and claiming to have designed its own modern, mobile surface to air missiles.

It is not clear from open source literature what the real-world capabilities of the new Russian-supplied S-300 missiles, Iranian missiles, and radar sensor, and battle management systems Iran is acquiring will really be, or what upgrades will take place to its existing forces. They could lead to an important shift in the balance, but these uncertainties have been compounded by speculation over the real-world performance of missile and air defense systems like the S300 whose full technical character is not clear from open source data, and where performance specification and data are often speculative and there is no open source data to verify performance by either test and evaluation or combat experience.

L. Naval Force Modernization — Pages 204-217

Iran, Iraq, and the Southern Arab Gulf states do maintain large combat ships in their surface fleets. These ships can be used to threaten and intimidate at lower levels of escalation, and they are another key element of the regional military balance.

The Arab Gulf states have several major advantages in any major conventional naval operations in the Gulf region. Their major surface ships are far more modern, and they are nearly certain to have the support of U.S. naval and air forces.

Such fighting will be joint naval-air-missile operations. The ability of Iran's aging larger surface vessels to survive under such conditions is doubtful. The U.S. Navy and Air Force, and Southern Arab Gulf air forces should be able to locate and destroy Iran's large surface forces quickly unless they disperse deep into Indian Ocean.

At the same time, Iran may be able to exploit its land- and air-based anti-ship missiles, submarines, smart mines, and missile/suicide small craft – dispersing and moving forces that are far harder to locate and attack. Iran relies heavily largely on asymmetric naval systems. It possesses the largest inventory of patrol and coastal combatants, submersibles, land-based anti-ship missiles, and mine warfare capabilities.

Iran also continues to steadily improve its capabilities to use such "asymmetric" forces to threaten Gulf shipping and offshore oil facilities, islands, and coastlines. It can also use such forces to harass or threaten larger craft such as tankers and aircraft carriers. Iran has not, however, focused much effort to act as a blue-water navy.

M. Missile Force Modernization — Pages 218-229

Land based ballistic and cruise missiles, and long-range artillery rockets, are an area where Iran has a significant lead, although much of the open source data may exaggerate Iran's missile holdings and ignore their lack of lethality against point targets and critical military and civil facilities. These missile forces can supplement Iran's air, sea, and land power.

Most importantly, they can at least partly compensate for Iran's weaknesses in airpower and maneuver forces; and provide a means of leap frogging to more advanced forms of war. Iran has tried to compensate for its failure to modernize many of its major weapons systems by creating the largest and most diverse missile arsenal in the Middle East, with thousands and short and medium-range ballistic and cruise missiles capable of striking targets as far as Israel and southeast Europe.

Missiles have become a central tool of Iranian power projection and anti-access/ area-denial capabilities in the face of U.S. and Southern Arab naval and air power in the region. This helps explain why there is little change that Iran will give up its missile capabilities are part of nay arms control agreement, and is placing a heavy emphasis on improving its missile forces to include systems with precision-guided conventional warheads.

While Iran has not yet tested or deployed a missile capable of striking the United States, it continues to develop longer-range missile technologies under the auspices of its space-launch program. In addition to increasing the quantity of its missile arsenal, Iran has also become a center for missile proliferation, supplying proxies such as Hezbollah and Syria's al-Assad regime with a steady supply of missiles and rockets, as well as local production capability. Furthermore, Iran is likely supplying Houthi rebel groups with short-range missiles in the ongoing conflict in Yemen.

Iran now only seems to arm its missiles with conventional warheads. Such missiles would only have the lethality of even one conventional laser-guided bomb even if they were accurate or lucky enough to hit a point target. However, Iran is the only Gulf power that is a declared chemical weapons state, that has a well-developed nuclear program that has brought it to the edge of actual ability to produce nuclear warheads, and that may have an advanced biological weapons program.

At present, most of Iran's missiles lack the accuracy/reliability and precision targeting capability to achieve significant lethality against most forms of point target – economic, infrastructure, energy, or military. Even if Iran fires volleys of missiles, it is unlikely to inflict severe damage on any major target except by sheer luck. Iran is, however, beginning to deploy precision guided ballistic missiles and cruise missiles, and this could substantially offset its weaknesses in airpower or even give it an advantage overtime.

In the case of the Southern Arab Gulf states, Saudi Arabia is the only power with longer-range, land-based ballistic missiles, and these are aging Chinese supplied designs with limited real-world operational accuracy and relatively low lethality. Several Arab Gulf states do, however, have other missile forces provide aircraft and ship launched long-range range and precision strike capability with conventional warheads using systems like Storm Shadow, SLAM, Exocet, RQ-1 Predator, and Harpoon, with orders of newer systems like the Joint Stand-Off Weapon (JSOW).

Saudi Arabia, the UAE, and a number of other Arab Gulf states are exploring cruise missile options.

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The Forces that Shape the Gulf Arms Race

Measuring An Arms Race with Uncertain Victors

A major arms race is taking place in the Gulf. Recent arms transfers and military expenditures have shaped the current Gulf military balance summarized in **Figure One**, steadily increasing the potential risks and intensity of a future conflict – one that would in practice almost certainly involve additional elements of U.S. forces, as well as other Arab powers, European states like Britain and France, and other powers like Turkey and Russia.

This study surveys a range of sources to examine the patterns in Gulf military spending, arms transfers, and the modernization of key aspects of major forces – as well as some aspects of weapons quality. While it is based on unclassified data that have many limitations and differences between sources, it focuses on trends that are so broad and consistent that they are likely to be correct.

Figure after Figure from the range of key source data reveals these trends. They show that Iran, Iraq, and the Southern Arab Gulf states that make up the Gulf Cooperation Council (GCC) – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE -- have been involved in a massive arms race since the end of the Iran-Iraq war in 1988 -- one that has accelerated sharply over the last eight years.

They also show that it is an arms race that the Southern Arab Gulf states have decisively won in terms of military expenditures and arms imports, but one where Iran has come to the brink of acquiring nuclear weapons, gained an edge in missile forces, and has exploited the many tensions *between and within* its Arab neighbors to create capabilities for asymmetric warfare that its Arab neighbors have failed to effectively counter.

While Iran may have lost the conventional arms race, it has exploited the civil wars in Iraq, Syria, and Yemen and divisions between Arab rulers to make significant gains in terms of expanded regional influence and strategic leverage. Iran – like Arab extremists and terrorists – has taken advantage of its neighbors' self-inflicted wounds. It has steadily improved its ability exploit the many tensions and fractures between and within Arab states.

Iran's success includes the exploitation of the vulnerabilities of the Southern Gulf of GCC states – where petty divisions and feuding have long prevented effective military integration and interoperability. Moreover, Iran can exploit the fact that Iraq remains shattered and divided as the result of the U.S. invasion in 2003, while extremists and terrorist may benefit from the fact that several Arab Gulf states spend so much on military forces and arms that such spending may have compromised their ability to met the civil and development needs of their peoples.

A Long, Complex History of Tension, Conflict, and Military Spending

This arms race and the resulting risk of war s needs to be kept in historical context. It is not simply the result of the current

Figure One: Iran and the Arab Gulf Balance 2018

	Iraq	Iran	GCC	Saudi	UAE	Bahrain	Kuwait	Oman	Qatar
Active Personnel	64,000	523,000	368,100	227,000	63,000	8,200	15,500	42,600	11,800
Reserve Personnel	-	250,000	-	-	-	-	-	-	-
Main Battle Tanks	318	1,513	3,010	1,926	421	180	293	117	73
AIFVs	675	725	2,502	1,065	554	89	465	197	132
APCs	910	640	4,529	2,381	1,245	203	260	250	190
Towed Artillery	60	2,030	467	218	93	36	-	108	12
SP Artillery	72	292	801	356	181	82	106	24	52
MRLs	3	1,476	192	60	75	18	27	6	6
Combat Aircraft	60	334	701	365	156	38	66	58	18
Attack Helicopters	28	50	102	47	-	28	16	-	11
Major SAM Launchers	0	237	282	236	-	6	40	-	-
Destroyers	-	-	3	2	-	-	-		
Frigates	-	-	8	4	1	-	-	3	-
Corvettes	-	7	16	4	10	-	-	2	-
Patrol and Coastal Combatants	32	132	155	26	32	52	20	10	15
Submarines	-	3	-	-	-	-	-	-	-
Submersibles	-	18	-	-	-	-	-	-	-
Mine Warfare	-	-	5	3	2	-	-	-	-
Landing Ships	-	15	2	-	2	-	-	1	-
Landing Craft	-	13	27	5	16	1	-	5	1

*Adapted from the **IISS Military Balance**, 2018*

tension between Iran and its Arab neighbors, but rather of a constant series of struggles between a constantly shifting mix of regional powers that lasted for more than half a century. It began with the spillover of the Arab-Israeli conflicts that began in 1948, Nasserism, rivalries between Gulf states, the fall of the Iraqi monarchy, British withdrawal from a governing role in the Gulf, the wave of petroleum wealth that accelerated with the oil embargo in 1973. All became major factors in starting and sustaining the Gulf arms race that has gone on since the 1950s.

Outside powers have also consistently played a major hand. Russian and East European arms transfers and support helped trigger a struggle for military influence between the U.S. and Europe on the one hand, and the Soviet Union/Russia on the other, that has gone on in some form since 1946.

The military build-up and arms race in the Gulf that began in the 1950s accelerated steadily along with each increase in "oil wealth" from the mid-1960s onwards. Arab nationalism helped breed new tensions within and between the Gulf states from the time of Nasser onwards – although the rise of religious extremism became a far more serious source of tension and outside interference from the 1990s to the present.

At the same time, the rise of Nasser and Egypt's invasion of Yemen from 1962-1970, Russian efforts to win influence in the Gulf and MENA region, British withdrawal from "East of Suez" in 1964-1968, the fall of the Shah in 1979, and the rise of extremist violence all pushed the conservative Arab Gulf monarchies into expanding their military forces and importing arms. It also led to their growing dependence on the United States to help provide arms sales and military forces to secure the Gulf, along with support from British and French power projection forces and European arms sales.

After the fall of the Shah in 1979, Iran began to use arms sales – and military advisors and volunteers – to steadily exploit the tensions and conflicts between Arab states and Israel to expand its influence. The resulting military build-ups, and Arab efforts to create security ties to the United States accelerated sharply with the start of the Iran-Iraq War in 1980, and particularly after Iran began to successfully counterattack in 1983. The Iran-Iraq War also helped trigger a low-level "Tanker War" between the U.S. and Iran over the U.S. reflagging of Kuwaiti tankers during 1987-1988. In the process, the Iran-Iraq War became the longest and bloodiest war in the modern of the history of the Middle East.

The ceasefire in the Iran-Iraq War in August 1988 was followed by an inter-Arab crisis over Iraqi repayment of its war debts. This led Iraq to invade Kuwait in 1990, and then triggered a major war with a U.S.-Saudi led coalition to liberate Kuwait in 1900-1991. Postwar power struggles with Saddam Hussein, intelligence failures that led the U.S. to believe Saddam continued to develop weapons of mass destruction, and this and the complex mix of tensions following Al Qaida's "9/11" attacks on of New York and Washington in 2001, help trigger a new U.S.–led invasion of Iraq in 2003.

This U.S.-led invasion not only destroyed Iraq's status as a military buffer against Iran, it created a conflict between the new Iraqi governments and violent Sunni extremists that lasted from 2004 to 2010. A failed Iraqi election then helped lead to the revival of Sunni extremism between 2011-2014, continuing tension between Arab and Kurd, wider Iranian influence in Iraq, and rising regional tensions and religious extremism between Arab Sunnis and Shiites.

The failures in Arab civil governance that led to widespread popular uprisings in 2001 helped trigger a major civil war in Syria that tore the country apart, led to the widespread creation of sectarian extremism, and came to involve outside intervention by Saudi Arabia, the UAE, Qatar, another U.S.-led coalition, Iran, Turkey, and Russia. The divisions in both Syria and Iraq then helped empower a new armed Sunni extremist movement called ISIS, and that was able to carve out a "caliphate" in eastern Syria and western Iraq in 2014-2015. The result was a complex set of interlocking civil conflicts and efforts to destroy the ISIS "caliphate" that still continue.

At the same time, a Houthi-Saudi border war, and violent political upheavals in Yemen, triggered a major Yemeni civil war in 2015. This civil war soon came to involve a Saudi-UAE led Arab coalition supporting an ousted civil government, and Iranian intervention in support of the Shi'ite Houthis – as well as the expansion of the Gulf arms race to the Red Sea. The impact on the population of Yemen also added another massive tragedy to the human costs of the Iran-Iraq War, invasion of Kuwait, invasion of Iraq in 2003, rise of violent extremism and ISIS, and Syrian civil war.

Since 1980, many aspects of the Gulf arms race have been driven by the role that Iran has played in seeking to expand its influence and maintain its security through efforts such as providing arms, training, covert attacks, and volunteers to support Hezbollah in Lebanon, Hamas in Gaza, factions in Syria and Iraq, violent Shi'ite opposition elements in countries like Bahrain, and now the Houthis in Yemen. In fairness, however, it was Iraq that invaded Iran, and Arab self-destructiveness that Iran exploited but did not create. Failed authoritarian regimes created sectarian, ethnic, and tribal tensions – coupled to mixes of repression and corruption – that tore several Arab states a part. Petty Arab princes divided over influence, feuds, and efforts to expand their power. The Arab Gulf states failed to unite and create an effective military alliance and effort to fight extremism. The Saudi-UAE-led boycott of Qatar that began in June 2017 has deeply divided – if not shattered – the already tenuous military alliance within the Gulf Cooperation Council (GCC).

An Arab Gulf-Dominated Arms Race and Military Build-Up

The sources presented in this analysis focus on the more current aspects of this arms race in the Gulf, and its impact on the military forces of each Arab Gulf state and Iran. The analysis draws upon a mix of reports by the U.S. government, international

organizations like the UN and World Bank, research institutions like the IISS and SIPRI, and commercial research groups like IHS Janes to provide a detailed picture of the trends in military spending, arms transfers, and modernization since the end of the Iran-Iraq War. As is described in the analysis that follows, there are many inevitable uncertainties and conflicts in the data, but the overall patterns in spending and arms transfers are consistent from source-to-source.

The Arab Advantage in the Gulf Arms Race

The Arab Gulf States have several major advantages in the Gulf Arms race despite petty feuding and the failure to turn to the Gulf Cooperation Council (created in May 1981) into a serious and integrated military alliance. The U.S. took the decision to replace Britain in the Gulf in the 1960s and created a "Twin Pillars" doctrine where it provided military support to both Iran and the Arab Gulf states.

The fall of the Shah, the seizure of the U.S. Embassy in Tehran, and the hostility of the Khomeini regime – along with fears of Russian influence after the Russian invasion of Afghanistan – led the U.S. and Europe to halt arms sales to Iran, rely on the Arab Gulf states as security partners, and then back Iraq in the Iran-Iraq War once Iran went on the offensive against Iraq in 1983-1984.

The U.S. began to place sanctions on arms sales to Iran after the seizure of the U.S. Embassy in Tehran in 1979. It formally lifted them after the release of U.S. hostages in 1981, but the U.S., Britain, France and other allied European states still saw Iran as a radical threat and did not resume exports of critical weapons, parts, and military supplies. Iran's role in the bombing of a U.S. Marine corps barracks in Lebanon in 1983, and support of Hezbollah contributed to these views. Formal sanctions were gradually re-imposed after 1984, when Iran appeared to be winning the Iran-Iraq War and threatened to defeat Iraq – as well as because of Iranian sponsorship of attacks on U.S. forces and the Hezbollah, and then because of Iran's efforts to acquire nuclear weapons.

Russia sold Iran some advanced arms during the Iran-Iraq War, but sharply restricted its sales once Iran went on the counteroffensive. This left Iran heavily dependent on a black market and covert arms buys to support its U.S. and European supplied weapons, and on Chinese, North Korean, and Vietnamese sales of lower grade arms. While Russia did provide some modern arms as the war progressed, it never became a consistent supplier. China limited sales from the 1990s onwards because of U.S, pressure, and it still is only gradually becoming a source of truly competitive military exports.

This gave the Arab Gulf states a major advantage in expanding and modernizing their military forces from 1979 onwards, and one that was sharply reinforced by other developments in the region. Saddam Hussein's invasion of Kuwait in 1990 led the U.S. and

Europe to become full partners with the Arab Southern Gulf states in liberating Kuwait in 1990-1991, while the outcome of the 1991 Gulf War peace agreements between Egypt and Jordan and Israel sharply reduced the political problems in U.S. sales of advanced arms to the Arab states.

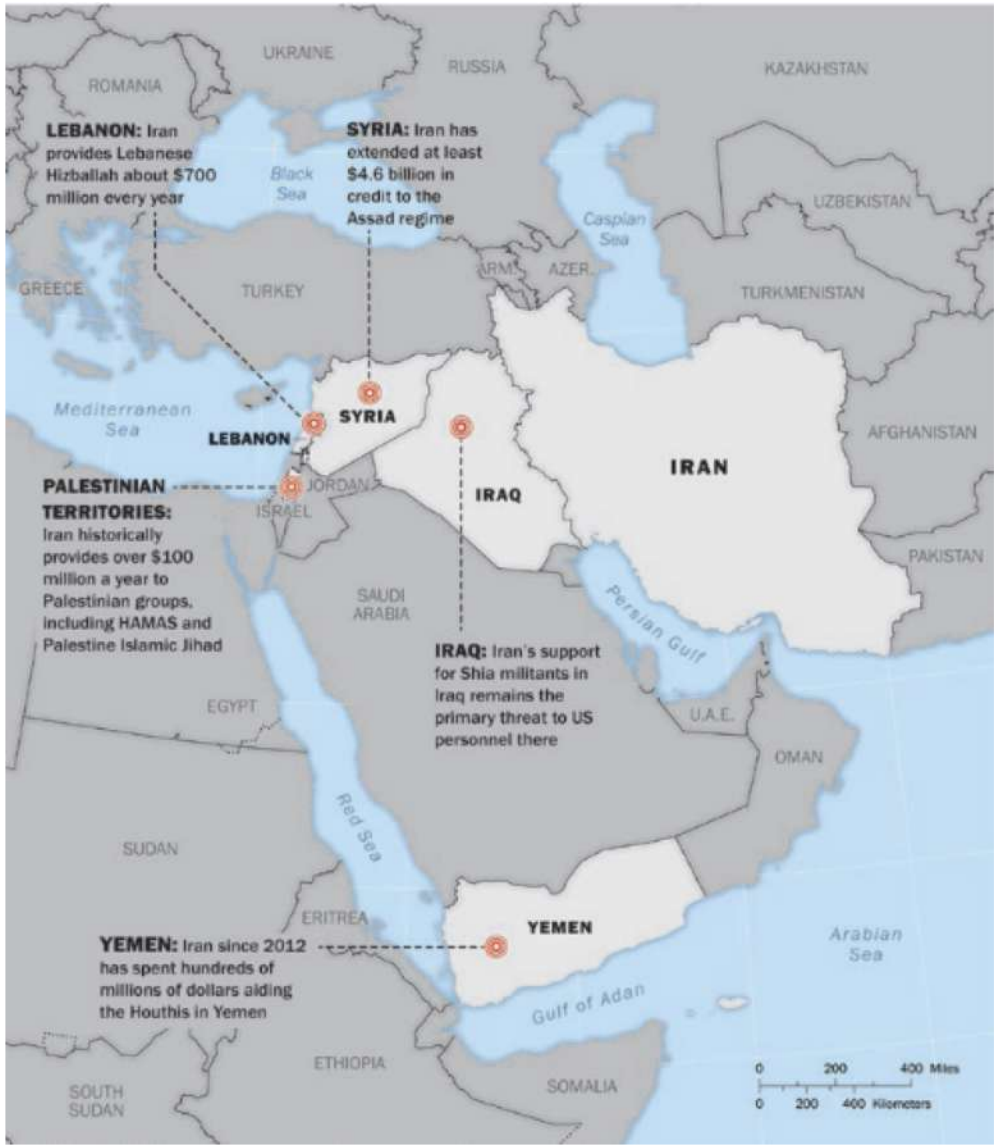
Iran's Hybrid Strategy and Emphasis on Asymmetric Forces and Strategic Influence

In contrast, Iranian carried out another serious attack on U.S. forces housed in the Al Khobar Towers in Dhahran in Saudi Arabia in 1996. It permitted members of Al Qaida to transit to Afghanistan before 9/11, and trained Iraqi extremist forces and equipped them with advanced improvised explosive devices – some of which could penetrate even advanced U.S. armor – after 2003. It carried out a plot to assassinate the Saudi Ambassador in Washington in September 2011.

These actions, and a range of less publicized attacks and attack attempts, reinforced U.S. hostility to Iran, as did Iran's hostility to Israel and support of the Hezbollah. So did the rise of Iranian nuclear weapons and missile programs, and Iranian threats to use a mix of carefully tailored naval-missile- and air forces to close the Gulf to maritime traffic and shipping. So did Iran's efforts to support outside forces, and provide arms, training, and volunteers to support pro-Iranian non-state actors and extremist movements outside Iran. **Figure Two** draws upon the same State Department report cited earlier to show the size of recent Iranian efforts to support such movements in Arab states.

As noted in the analysis at the start of this study, Iran has also made real progress during the last decade in developing and deploying ballistic missiles and more recently in purchasing, developing, and deploying more advanced land-based air defense systems. It has steadily improved its anti-ship missile forces and its artillery rockets. Its progress in other aspects of Iranian military production like deploying new armor, self-propelled artillery, combat aircraft, and major surface ships has been far more limited, but it is correcting or compensating for some of its weaknesses and may shift the balance more in its favoer over time.

Figure Two: Supporting Proxies versus Importing Arms



"Since 1979, Iran's Islamic Republic has made it a policy of state to actively direct, facilitate, and carry out terrorist activity globally. Unlike almost any other country, the Islamic Republic has supported terrorism within its own military and intelligence apparatuses.

Through its Islamic Revolutionary Guard Corps-Qods Force (IRGC-QF), the extra-territorial branch of the Islamic Revolutionary Guard Corps (IRGC), and the Ministry of Intelligence and Security (MOIS), Iran conducts attacks, assassinations, as well as supports terrorist plotting. The IRGC-QF takes the lead on Iran's support for proxies and terrorist operations outside Iran.

The organization ensures that the "continuation of the Revolution at home and abroad," as written in the preamble of the Iranian constitution, is fully implemented. Iran uses its MOIS operatives for intelligence collection and clandestine operations outside Iran.

…Since 2012, Iran has spent over $16 billion propping up the Assad regime and supporting its other partners and proxies in Syria, Iraq, and Yemen.

…Among the groups receiving support from Iran are Lebanese Hizballah, Hamas, Palestine Islamic Jihad (PIJ), Kata'ib Hizballah (KH) in Iraq, and Al-Ashtar Brigades (AAB) in Bahrain…Iran has provided weapons and support to Shia militant groups in Iraq, the Houthis in Yemen, and the Taliban in Afghanistan

…Lebanese Hizballah is Iran's most powerful terrorist partner. In the past several years, it has demonstrated its far-reaching terrorist and military capabilities. Iran's annual financial backing to Lebanese Hizballah – a staggering $700 million per year – accounts for the overwhelming majority of the group's annual budget."

Source: adapted from U.S. State Department, *Outlaw Regime*, 2018, p. 11, https://www.state.gov/documents/organization/286410.pdf

The U.S. and European Presence in the Gulf and Their Continuing Vital Strategic Interests

Accordingly, the trends in military spending and arms transfers described in this analysis – coupled to their impact on overall force modernization -- are critical to understanding both the regional military balance and the economic impact of maintaining military and other security forces on the states involved. They also, however, are shaped by a U.S. and European commitment to Arab security partners in the Gulf that may vary according to relations between given countries at a given time but reflect enduring national security interests.

The United States, its allies, and other outside powers are deeply involved in Gulf security as well as Gulf states and cannot ignore the critical role that the Gulf plays in exporting petroleum and supporting the world economy. As a result, the security of the Arab Gulf states and world petroleum exports remains as important to a U.S. that is now largely self-sufficient in petroleum as it was in the days when the U.S. was a major importer.

A July 25, 2017 analysis by the U.S. Energy Information Agency notes that an average of 18.5 million barrels of oil moved by sea through the Strait of Hormuz in 2016. These exports were roughly 20% of the total world consumption of some 97.2 million barrels of petroleum and other liquids a day; and they did not include petroleum exports through the Red Sea, Turkey and other pipelines bypassing the Strait of Hormuz.

This makes securing the flow of Gulf exports critical to a world in which every major modern economy is dependent on the flow of world trade to-and-from states that depend on Gulf petroleum exports. Even countries like the United States – which is one of few major powers to have nearly eliminated its dependence on petroleum imports – are becoming steadily more dependent on a global economy that helps shape every aspect their level of wealth and employment. The Gulf's ability to export is critical to the ability of key exporters like China, Japan, South Korea, and Taiwan to obtain the energy they need for their economies to function. It is equally critical to increase exports is also critical to meeting rising global demand from developing states, and to coping with interruptions and problems in other sources of production, as well as

As result, the *conventional* military balance in any Gulf crisis or conflict is unlikely to be shaped by a combination of Arab states versus Iran that excludes the U.S., Britain, France, and other states with regional bases and power projection capabilities. The U.S. is almost certain to play a critical role in any real-world conflict in the Gulf. If so, the resulting balance of forces will be shaped in favor of the Arab Gulf states by an immense U.S. advantage in battle management precision strike, and Intelligence, Surveillance, and Reconnaissance (IS&R) capability. It will also be shaped by the U.S. advantage in actual combat experience in advanced modern warfare against an Iran that has not been able to modernize effectively since 1979, that last fought a major war thirty years ago, and that fought much of that war using tactics that had only marginally improved from those used in World War I.

Iran's Counters to the Arab Gulf Advantage in Conventional Arms

That said, Iran has done more than demonstrate a consistent ability to exploit the many tension and division between its Gulf neighbors and other Arab states. The Figures in this report show that the Arab advantage in arms imports and military spending is very real. However, the data on military spending and arms imports that follow must be interpreted with the understanding that Iran has steadily improved its ability to wage asymmetric warfare and use much smaller arms transfers of missiles, volunteers, and advisors to powers like Iraq and Syria and non-state actors in these states, Afghanistan, Lebanon, and the Gaza. For all the recent Trump and Rouhani rhetoric about conflicts that could approach total war, Iran has managed to make some serious military advances despite the challenges it has faced.

Iran has demonstrated the ability to innovate and modify much of its major weapons. It has kept many operational in spite of their age and wear during the Iran-Iraq War, has modified and updated a number of older aircraft and ships, acquired some useful advanced munition and missiles, and begun to produce some major weapons on its own – although many of its claims are suspect and largely propaganda.

- *CBRN Weapons*: Iran has announced it has developed the ability to produce chemical weapons, has clearly managed to conduct a nuclear weapons program that brought it to the edge of nuclear capability, and may have made some progress in biological weapons. U.S. withdrawal from the JCPOA could lead to an Iranian return to developing a significant capability to develop weapons of mass destruction.

- *Land Attack Missiles*: Iran has developed a major capability to deliver ballistic missiles and artillery rockets against targets in the region, and has large number of missiles deployed where they can strike targets in the Arabian Peninsula and along the Gulf coast. It is developing precision strike ballistic missiles which would be far more effective in striking at high value military, commercial, and infrastructure targets. It also is making progress in developing precision strike cruise missiles and armed UAVs. These give it at least a partial substitute for its lack of modern and sustainable air power.

- *Modern Land-Based Air Defenses:* While Iran has not received recent deliveries of "offensive" combat weapons from Russia or other sources, it has received advanced new short-range surface-to-air missiles from Russia like the Tor-M1 and is taking delivery on modern S300s, as well as more advanced radars and battle management systems. It may be seeking to acquiring surface-to-air missiles with feature similar to Russian C-400 Triumf surface-to-air missile that has some anti-ballistic missile capability.

- *Land forces that focus on defense in depth and asymmetric warfare:* Partly in reaction to its concern that the U.S. might follow its invasion of Iraq with an attack on Iran, Iran has built upon its lessons from the Iran-Iraq War to create both an extensive defense in depth capability, and a combination of its Revolutionary Guards Corps and Basij forces to provide a widely dispersed defense in depth capability and forces that could play an asymmetric role in resisting and attacking any occupation forces.

- *Naval-Missile-Air Capabilities to attack maritime forces and coastal targets:* Iran has developed a broad mix of anti-ship missiles, Naval Guards/Marines, missile and "suicide" attack boats, smart mines, submarines and submersibles, and air units that can be used to attack shipping, offshore, and coastal targets anywhere in the Gulf, and deploy outside the Gulf in the Indian Ocean and Red Sea. It has also greatly improved its capability disperse, conceal and shelter these forces, and conduct a survivable war of attrition. It has claimed to have developed and deployed its own advanced anti-ship missiles and smart mine variants.

- *Exploitation of "Soft Warfare" in the form of Cyberwarfare, Strategic Communications, and "Wars of Intimidation.*" Iran has realized that it cannot win an all-out conflict, but can exploit low levels of tension, crisis, clashes, propaganda, and cyberattacks – along with threats and exaggerated military claims – to win what might be called "soft warfare." It understands that preemption, wars of attrition, and "fighting" at lower levels of escalation offer it strategic opportunities at acceptable levels of risk in spite of Arab advantages in conventional forces.

- *Exploitation of Arab divisions and sectarian and ethnic fracture lines*. Political leaders in the region often use the term "Arab" to describe the search for unity and effective action. Historically, "Arab" has become a four-letter acronym for division and dysfunctional. Iran has skillfully exploited the divisions and quarrels between and within the Arab Gulf states to create ties to Shi'ite opposition in Bahrain, to expand its ties to Qatar after the boycott led by Saudi Arabia and the UAE, to exploit Shiite influence in Kuwait and trading interests in Dubai, and improve its ties to an Omani government with a history of tension with Saudi Arabia. It has gain broad strategic influence from exploiting such divisions in the Lebanese civil war, Palestinian movement, Iraqi civil war, Syria civil war, and Yemeni civil war. Its role in Syria has also allowed it to improve its relations with Russia.

- *Use of strategic partners and expanding regional influence:* Iran has steadily built up its ties to the Hezbollah and Shi'ites in Lebanon, Assad regime in Syria, Shi'ite and Kurdish elements in Iraq, Shi'ites in the Arab Gulf, Shi'ite and other forces in Yemen, and elements of the Taliban in Afghanistan to expand its influence and potential sources of military support in the region.

- *U.S. grand strategic failures:* The Arab world scarcely has a monopoly on strategic failure. The U.S. failure to prepare for the civil and military consequences of invading Iraq removed a critical military counterbalance to Iran, and opened Iraq up to a major increase in Iranian influence from 2003 to the present. The U.S failed to act decisively at any point in the Syria civil war – except to focus on ISIS -- gave both Iran and Russia a major new opening and helped keep Assad in power. A new grand strategic tragedy may be unfolding in Yemen, and a U.S. failure to focus on the need for civil reform and progress in the Arab world, and tie U.S. arms sales to clear mission priorities, integration, and interoperability has had costs of its own.

Assessing the Balance

None of Iran's actions, current capabilities for asymmetric warfare, and "successes" in expanding its regional influence can *now* compensate for the vulnerabilities in modernization and force strength presented in this analysis and allow it to win a major conflict with the Arab Gulf states and the United States. Unless Iran can develop and deploy nuclear weapons, or a massive number of conventionally armed precision guided missiles, the Arab side can dominate by escalating its levels of attack using a major advantage in precision guided airpower. This advantage seems likely to continue in the future in any conflict where the the U.S. engages and uses its stealth attack systems to counter Iran's acquisition of new Russian air defense systems like the S-300.

Iran's asymmetric approach to warfare might also, allow it to win a more limited asymmetric war based on more limited objectives, and conduct a prolonged war of attrition at a low level by limiting its overall level of escalation to the point where Arab Gulf states and the U.S. would not respond decisively. Iran can also exploit such threats to achieve limited objectives while continuing to expand its regional influence and develop its military forces.

The Arab Gulf states can also do much to deny Iran any advantage it can gain from its current strategy if they can achieve more unity, stop their petty rivalries and heal their self-inflicted wounds, and use their security expenditures and arms transfers more wisely. Creating more integrated, standardized, and interoperable forces could make them far more effective at far less cost. Tailoring their forces to provide missile defense, effective counter to Iran's asymmetric threat to Gulf shipping and exports would help. Developing better focused partnerships with the United States and key European power projection forces would also allow Gulf forces to be far more effective. The problem is not more resources – the Arab Gulf states already spend too much. The military spending, arms transfer, and force numbers in this analysis show that the key is making Gulf Arab unity a far more effective reality.

The Geography of the Gulf Military Balance

Source: https://www.google.com/search?q=CIA+map+of+the+arabian+peninsula+and+surrounding+lands&client=firefox-b-1&tbm=isch&source=iu&ictx=1&fir=FkDlLxR7_Mka3M%253A%252CvMCCwdkApixALM%252C_&usg=__WKpQxlIARF3G5u-2pC1-CQOss0k%3D&sa=X&ved=0ahUKEwjz1ZD3krXcAhXEm-AKHc7CAmoQ9QEILzAC#imgrc=FkDlLxR7_Mka3M:

Iran's "Near Abroad"

Source: Google Earth

A. Regional Military Expenditures: IISS and SIPRI Data

IISS and SIPRI Estimates of Military Expenditures

The Gulf military balance is shaped as much by national resources as by choices in creating, shaping, and deploying military forces. The level of military spending in the region – along with the massive and steadily growing arms imports of several Arab Gulf states – also affects security in terms of what a given state can spend on its people and its economic development. This makes comparisons of military spending, arms imports, and the resulting level of modernization as critical factor in assessing the military balance.

This is particularly true because modern military forces are highly dependent on specialized technology and maintenance and sustainability equipment and services, precision guided and specialized weapons and ordnance, and a range military electronics and sensors that do not show up in the major weapons counts shown earlier in **Figure One**, and later in the modernization sections of this report. Here, total spending is a crude indicator of overall effort. Similarly, readiness is hard to measure, but nations that spend too little on personnel, training, and other aspects of readiness cannot benefit from buying more advanced weapons they can use effectively.

The Use of IISS and SIPRI Data

The data in this section show that two key research institutes like the International Institute for Strategic Studies (IISS) and the Stockholm International Peace Research Institute (SIPIRI) provide estimates of current Gulf military spending that show Iran has far fewer resources than the Southern Gulf states, a low per capita income even relative to the MENA average, and has faced major problems in recent years because of its own massive mistakes in economic policy and the impact of the sanction that the U.S., UN, and EU imposed because of its nuclear weapons programs.

The IISS and SIPRI data are particularly valuable because they extend to a time frame as recent as 2017, and reflect a continuing sharp increase in arms transfers, as well as major military spending, in spite of a serous drop in Gulf petroleum exports income in recent years – as well as estimates of Iranian spending in the first year after it implemented the JCPOA nuclear arms agreement. Unfortunately, virtually no Gulf country publishes meaningful military spending, arms transfer, or other military data. They also do not submit data to the United Nations Office for Disarmament Affairs (UNDOA) (https://www.un.org/disarmament/convarms/register/). As a result, the UN refers users of its database to the IISS and SIPRI.

The broad trends revealed in the IISS and SIPIRI data are reinforced by the official U.S. government data on military expenditures, arms transfers, and the burden they place on given economies in the following section. These country-by-country data are drawn from a U.S. State Department report called ***World Military Expenditures and Arms Transfers*** (WMEAT). They have the advantage of being able to draw on the full capabilities of the U.S. government, including its intelligence services, and to explore different

definitions and counting rules. The latest version was published in December 2017, but it has the limit that it only covers spending through 2015, and does not tie its estimates to how money is spent on given area s of arms transfers.

The Limits to the IISS and SIPRI Data

It should be noted that there are a wide range of limitations to the data provided. The United States is not shown in most of these figures because its defense spending – some $600 to 700 billion a year in recent years – is so large and so hard to parse out in terms of regional expenditures and reinforcement capabilities – that it effectively swamps any comparisons of military spending by regional states.

There also are problems in comparing virtually every aspect of data on different countries. Many sources make no attempt to explain the range of uncertainties in the data they provide, or to define their data in detail, and there are so many differences involved in categories like military spending that the become too long to even summarize.

Annual comparisons do not illustrate trends or the cumulative patterns in spending that shape the military balance over time. The data that different sources provide sometimes differs sharply even when such sources appear to be making estimates of what should be directly comparable data. in estimating data for military expenditures for the same country and the same year. There sometimes are gaps in the data for a given period of years, and trend lines can be uncertain even when estimates are provided because the sources and methods in reporting change over time.

Nevertheless, some trends are so broad that they do clearly illustrate the problems Iran faces relative to Arab Gulf and U.S. and other outside forces:

- ***Figure A1: Relative "Wealth of the Gulf States in 2017 – World Bank Estimate:*** Any comparison of the Gulf states shows how radically they differ in size, economic purchasing power, and per capita income--along with their dependence on petroleum export revenues. This figure shows how limited Iran's share currently is of the region's total GDP (30%) and oil export wealth (15%), and how low its per capita income is relative to that of many neighboring Arab states.

  While Iran is not a real democracy – all meaningful candidates must be vetted through bodies controlled by its Supreme Leader – it must respond to public opinion and the needs of a population which is far too large to satisfy through the use of its petroleum revenues. This places basic structural spending limits on the size and capability of Iran military forces relative to those of its neighbors and the United States.

- ***Figure A2: Iran: The Pre-JCPOA Impact of Sanctions and the Crash in Oil Prices:*** As noted earlier, Iran has faced embargos and sanctions that affect its economy and arms purchase since 1979. This figure shows just how serious the impact of sanctions were before sanctions were partially lifted as a result of the JCPOA and its Implementation Day on January 16, 2016. The lifting of sanction was never as completed as Iran had hoped, however, and the U.S. is restoring its sanctions as a result of its withdrawal from the JCPOA on May 8, 2018.

- ***Figure A3: Impact of the "Crash" in Oil Prices on Gulf GDPs:*** This figure illustrates another major problem Iran has faced in its recent capability to fund its military forces. A crash took place in world oil prices while Iran was negotiating the JCPOA that led to a serious dip in its export earnings and helped to sharply limit any benefits from the JCPOA and the Rouhani administration's efforts at economic reform. This helped prevent any economic recovery or improvement in the life of most Iranians.

  Moreover, these problems were compounded by corruption, a shift on major sources of national wealth to the clergy and Bunyods, and the growing role of the Islamic Revolutionary Guards in the economy along with added spending in aid to win regional influence in cases like the wars in Syria and Yemen. The Arab Gulf economies also suffered from the drop in petroleum export revenues but most had extensive savings and far better access to the global economy and foreign lending.

- ***Figure A4: IHS Jane's, SIPRI, IISS: Defense Spending in 2017*****:** This Figure highlights the uncertainties in current estimates of military spending in the Gulf -- driven in part by a lack of transparency and public debate over military spending, a lack of any common definition of what should be included, and efforts to hide some aspects of spending from public criticism or review.

  Each of these estimates presents the problem that some countries – like Iran – disguised significant amounts of their military spending by hiding it in other areas of their budget. It is still clear, however, that Iran is only able to spend a small fraction of the money on military forces that its Arab neighbors, and that it can only spend a tiny fraction of the spending of the United States. Moreover, it is worth noting that Saudi Arabia alone now spends more on military forces as a global superpower like Russia. The IISS estimates that Saudi Arabia spent $76.7 billion in 2017 – making it the third largest spender in the world. Russia p $61.2 billion, India $52.5 billion, the UK $50.7 billion, and France $48.6 billion.

- ***Figure A5: IISS: Comparative Military and Security Spending in 2017*** highlights the previous comparison in graphic terms.

- ***Figure A6: Figure A6: Military Spending as Percent of GDP, 2017:*** This Figure presents another side of the story. Once again, sources differ sharply, and Iran may well be spending 5% to 7% of its GDP on military and security forces and operations outside Iran. At the same time, the data in this Figure warn that several Arab Gulf states are clearly spending far more of their economies

that they should, given their need for job creation, internal stability, and economic modernization and diversification. Here, President Obama and President Trump seem to have unfairly criticized America's strategic partners for failing to share the burden of paying for deterrence and Defense on the basis of terrible background papers and NSC staff work.

Virtually every Arab Gulf state is paying far more than the 2% percent of GDP the U.S. has sought from its NATO allies and several are paying nearly five times as much. As the arms transfer data provided later in Sections C and D of this report show, this burden will also accelerate in future years because massive new arms orders.

Developing states face serious problems in every aspect of internal stability when they overspend on military forces. The arms race in their Gulf is putting a serious strain on a number of states – especially Iran, Iraq, Saudi Arabia, and the UAE, and states are buying military security at a serious cost to their internal security and development.

Iran and the Several Arab Gulf states need to recognize that their current spending is too high, that military adventures have serious costs, and using arms sales to buy outside support can have serious negative impact. At the same time, the U.S. and other outside powers need to recognize this before pushing for added burden sharing and arms sales.

- ***Figure A7 and Figure A8: Comparative Gulf Military Spending Iran vs. GCC, Israel, Iraq: 2000-2017 in current and constant dollars****:* Figures A7 and A8 draw on SIPRI data to show the trends in military spending over nearly two decades. Figure A7 shows the trends for all the Arab Gulf (GCC) states versus Iran as well Israel, and Iraq in current dollars. Figure A8 shows the same trends in constant dollars..

  Both Figures show that Arab Gulf expenditures rose steadily relative to Iran during the period and how consistent the Arab lead has been. The trends in constant dollars do show a less sharp rise in recent years. It should be noted, however, that SIPRI does not make estimates for Qatar for 2011-2017 or for the UAE for 2015-2017. As a result the GCC advantage is significantly lower in 2011-2017 than it should be.

  It should also be noted that The drop in spending after 2014 was driven largely by the massive cut in world oil prices and the drop in Gulf petroleum export revenues shown in Figures A2 and Figure A-3 , and not by any easing of the tensions between Iran and the Arab Gulf states. It seems likely that military spending will rise in 2018 onwards if world petroleum prices continue to rise. Some aspects of the post 2014 drop are also unclear. Both Saudi Arabia and the UAE seem to under report the cost of the war in Yemen.

Figure A9 and Figure A10: Comparative Gulf Military Spending by Country, 2000-2017 in current and constant dollars: Figures A9 and A10 draw on the same SIPRI data to show the trends in military spending by country. Figure A9 shows the trends in current dollars and Figure A10 shows the same trends on constant dollars. Both Figures show how the clear lead in Arab Gulf expenditures rose relative to Iran, but they also illustrate the degree to which Saudi Arabia and the UAE dominate Arab Gulf military spending.

Some Key Points About These Trends

- Most trends sharply favor Arab states even if U.S. and European spending on power projection is ignored.
- Estimates are uncertain. Iran and other Gulf states may conceal significant security spending off budget. But, unlikely to affect trends or scale of difference.
- Iran has advantage from low-cost conscription, control of state industries, and is making real progress in ballistic and cruise missiles, and land-based air defenses – as well as the weaponry it needs to create a serious asymmetric naval-missile-air to maritime forces and shipping in the Gulf, Gulf of Oman, and potentially the Red Sea..
- Lack of coordination, standardization, and interoperability by Gulf states greatly reduces the military impact of their advantage in spending.
- But Iran's programs also have uncertain management, and Iran has massive disadvantage because of lack of access to modern and high-performance arms imports.
- Arab Gulf states can surge arms imports and funding of outside power projection support in a crisis. Iran cannot do so to date.

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A1: Iran: The Relative "Wealth" of the Gulf States in 2017 – World Bank/OPEC Estimate

Country	GDP ($USD Billions)	EXPORTS ($USD Billions)		GDP Per Capita ($USD Billions)	Population (1000s)
		Total	Petroleum		
Bahrain	35.3	14.3	8.6	23,655	1,493
Kuwait	120.2	55.3	50.7	29,040	4,137
Oman	72.6	31.9	21.2	15,668	4,636
Qatar	167.6	84.8	35.5	63,506	2,639
Saudi Arabia	683.8	231.5	159.7	20,761	32,938
UAE	382.6	313.5	65.6	40,699	55,243
GCC	1,462.3	731.3	341.4	-	55,243
Iran	439.5	110.8	52.7	5,415	81,163
Iraq	197.7	63.3	59.7	5,166	38,275
Yemen	-	-	-	-	28,250
MENA / Total	3,265.7	-	-	7,350	444,322
High Income	51,475,414.4	-	-	41,211	1,249,066
Low/ Medium Income	6,504.2	-	-	4,654	5,169
U.S.	19,390,604	-	-	59,532	325,719

Note: Major differences exist in UN, CIA. EIA, and other sources

Source: World Bank, https://data.worldbank.org/indicator/, accessed 25.7.2018; OPEC, Statistical Abstract 2018, pp. 19-20. CIA Factbook for some Bahrain and Oman export data.

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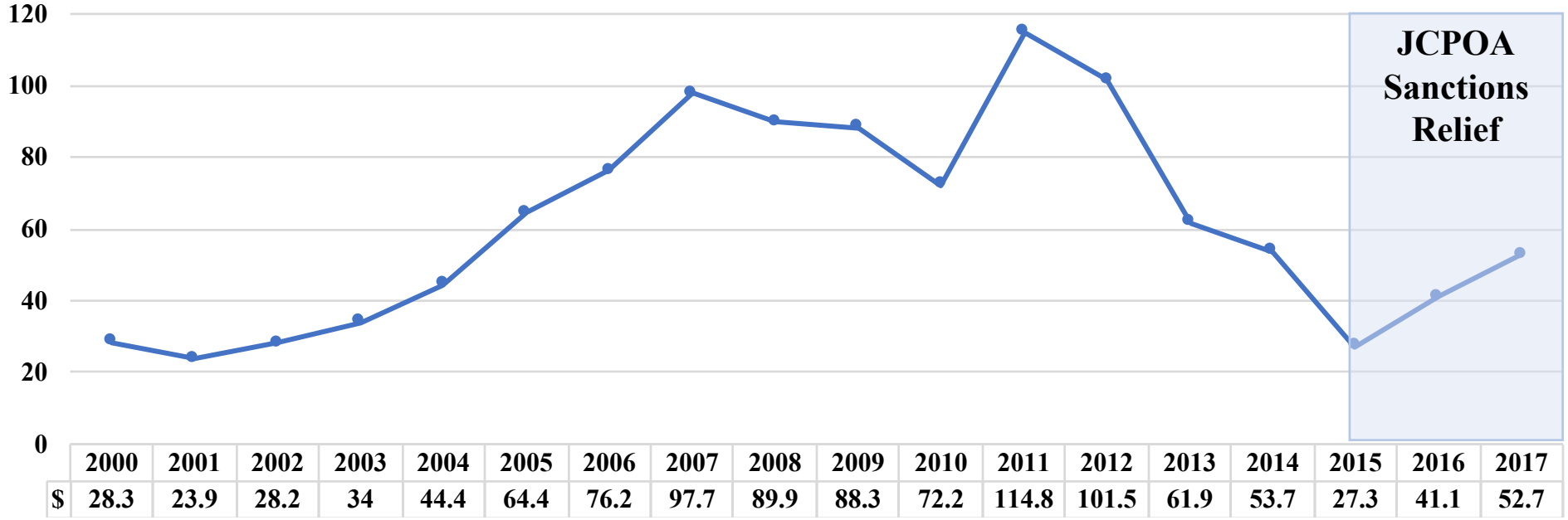
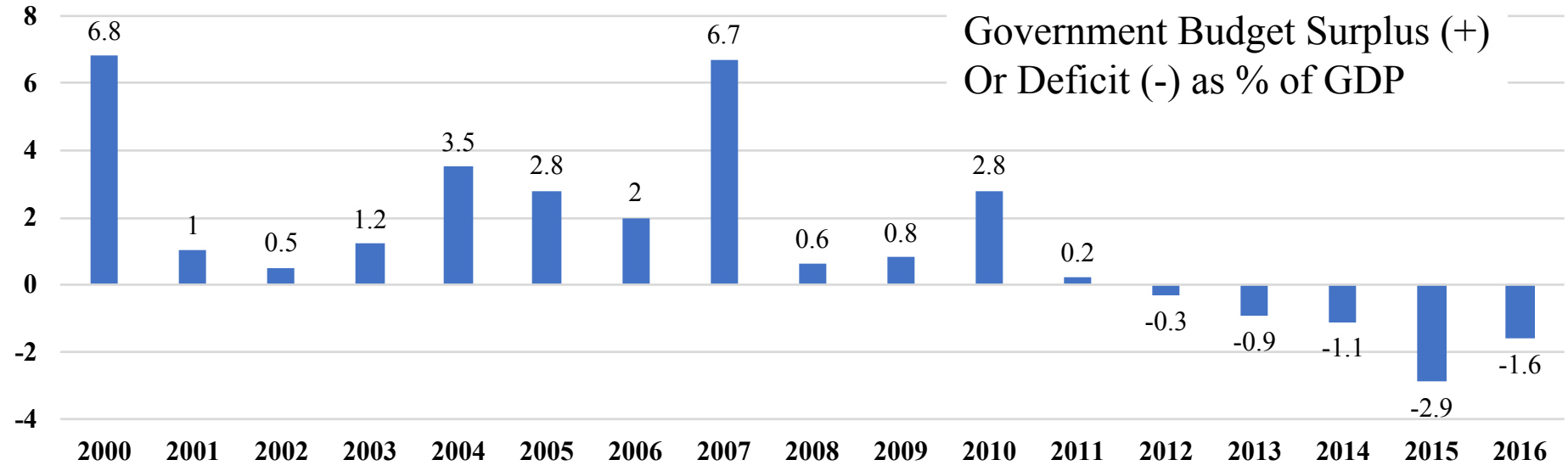
A2: Iran: The Pre-JCPOA Impact of Sanctions and the Crash in Oil Prices

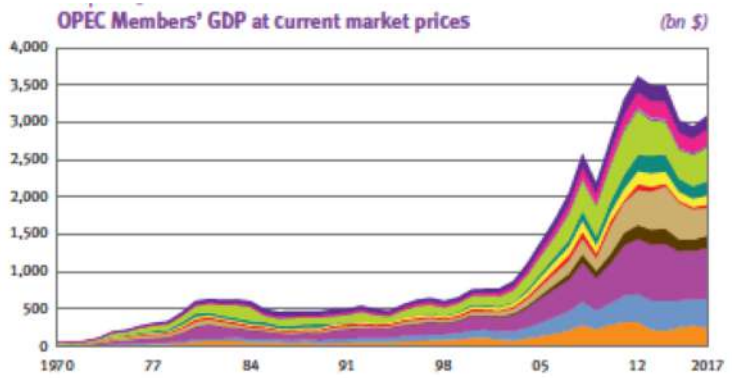


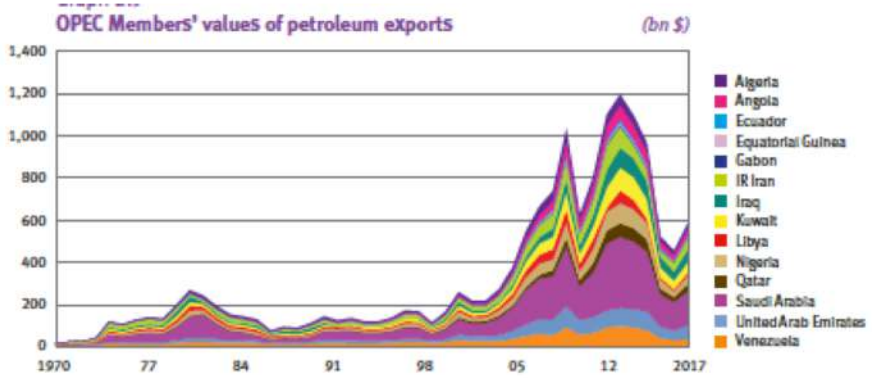
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
$	28.3	23.9	28.2	34	44.4	64.4	76.2	97.7	89.9	88.3	72.2	114.8	101.5	61.9	53.7	27.3	41.1	52.7



Source: Dr. Abdullah Toucan and OPEC Annual Statistical Bulletin 2017, https://www.opec.org/opec_web/en/publications/202.htm

A3: The Impact of the Crash in Oil Prices on Gulf GDPs





OPEC Members' GDP at current market prices (m $)

	2013	2014	2015	2016	2017
Algeria	209,722	213,947	166,250	159,017	174,099
Angola	124,913	126,730	102,621	95,337	124,209
Ecuador	95,130	101,726	99,290	98,614	100,472
Equatorial Guinea	21,943	21,462	12,162	10,178	10,725
Gabon	17,596	18,209	14,385	14,020	15,206
IR Iran	467,415	434,475	385,874	418,977	447,048
Iraq	236,438	228,491	176,046	166,274	191,216
Kuwait	174,179	162,695	114,606	110,873	120,351
Libya	67,864	36,143	30,063	33,308	43,774
Nigeria	509,134	561,603	487,093	400,365	371,886
Qatar	198,183	205,660	164,190	152,034	167,146
Saudi Arabia	746,647	756,350	654,270	644,936	683,827
United Arab Emirates	390,427	403,198	357,949	348,743	377,435
Venezuela	228,017	215,296	260,089	287,274	254,627
OPEC	3,487,608	3,485,985	3,024,888	2,939,950	3,082,021

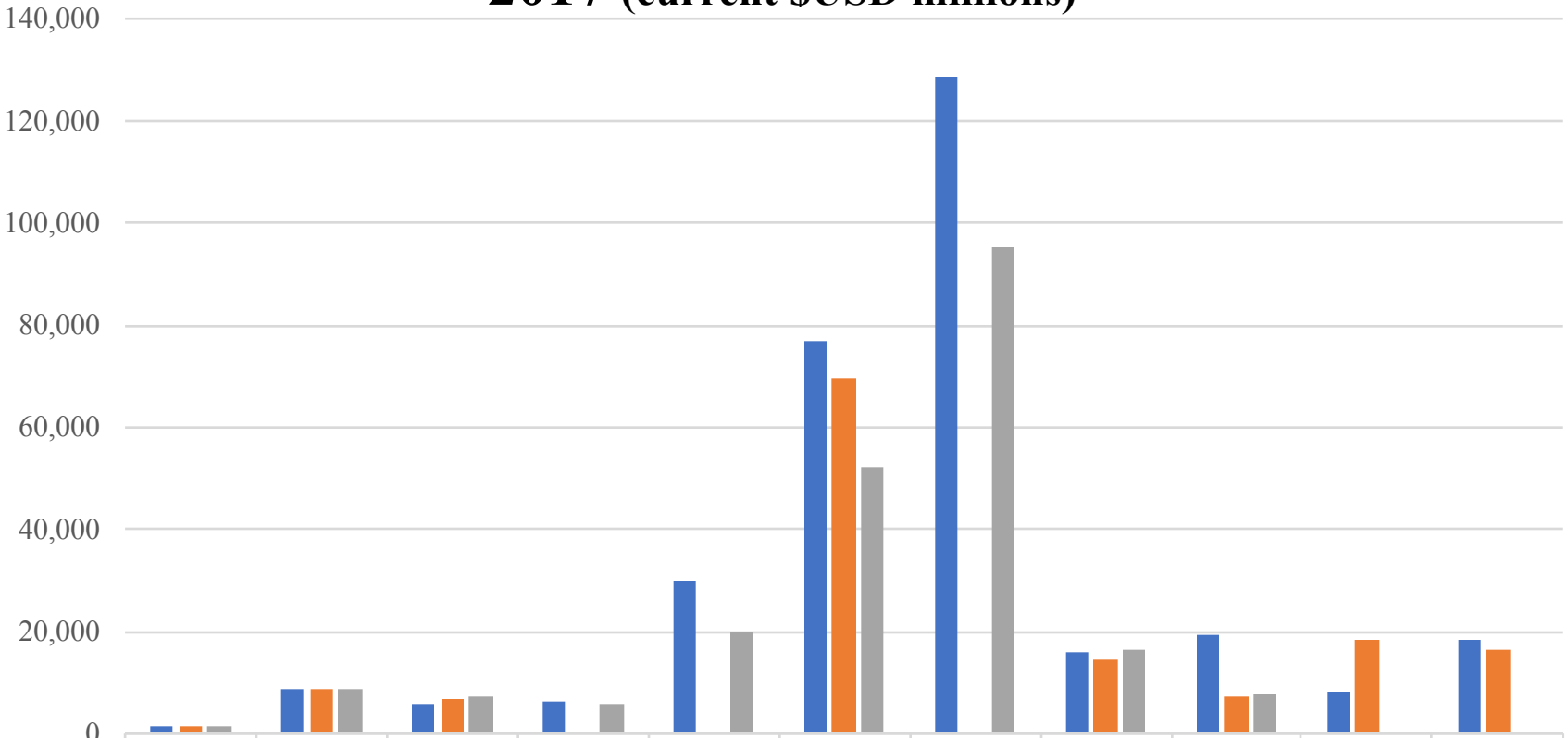
OPEC Members' values of petroleum exports (m $)

	2013	2014	2015	2016	2017
Algeria	44,462	40,628	21,742	18,643	22,353
Angola	65,965	56,614	31,509	25,691	31,550
Ecuador	14,107	13,276	6,660	5,459	6,914
Equatorial Guinea	12,119	11,058	5,911	4,352	4,689
Gabon	7,691	6,912	3,740	3,128	3,695
IR Iran	61,923	53,652	27,308	41,123	52,728
Iraq	89,403	84,303	49,211	43,684	59,730
Kuwait	107,543	94,324	48,444	41,461	50,683
Libya	44,445	20,357	10,973	9,313	15,014
Nigeria	90,546	78,053	41,818	27,788	38,607
Qatar	62,519	56,912	28,513	22,958	35,496
Saudi Arabia	321,888	284,558	152,910	136,194	159,742
United Arab Emirates	85,640	88,855	53,836	45,559	65,641
Venezuela	88,753	74,714	37,236	26,473	31,449
OPEC	1,097,004	964,215	519,811	451,826	578,292

Notes:
Where applicable, petroleum product exports are included. Data for some countries may include condensates, as well as other NGLs; some countries import substantial amounts of crude and products, resulting in lower net revenue from petroleum operations.

Source: OPEC, *Annual Statistical Bulletin, 2018*, https://asb.opec.org/index.php/pdf-download, pp. 19 & 21.

A4: Comparative Estimates of Defense Spending 2017 (current $USD millions)

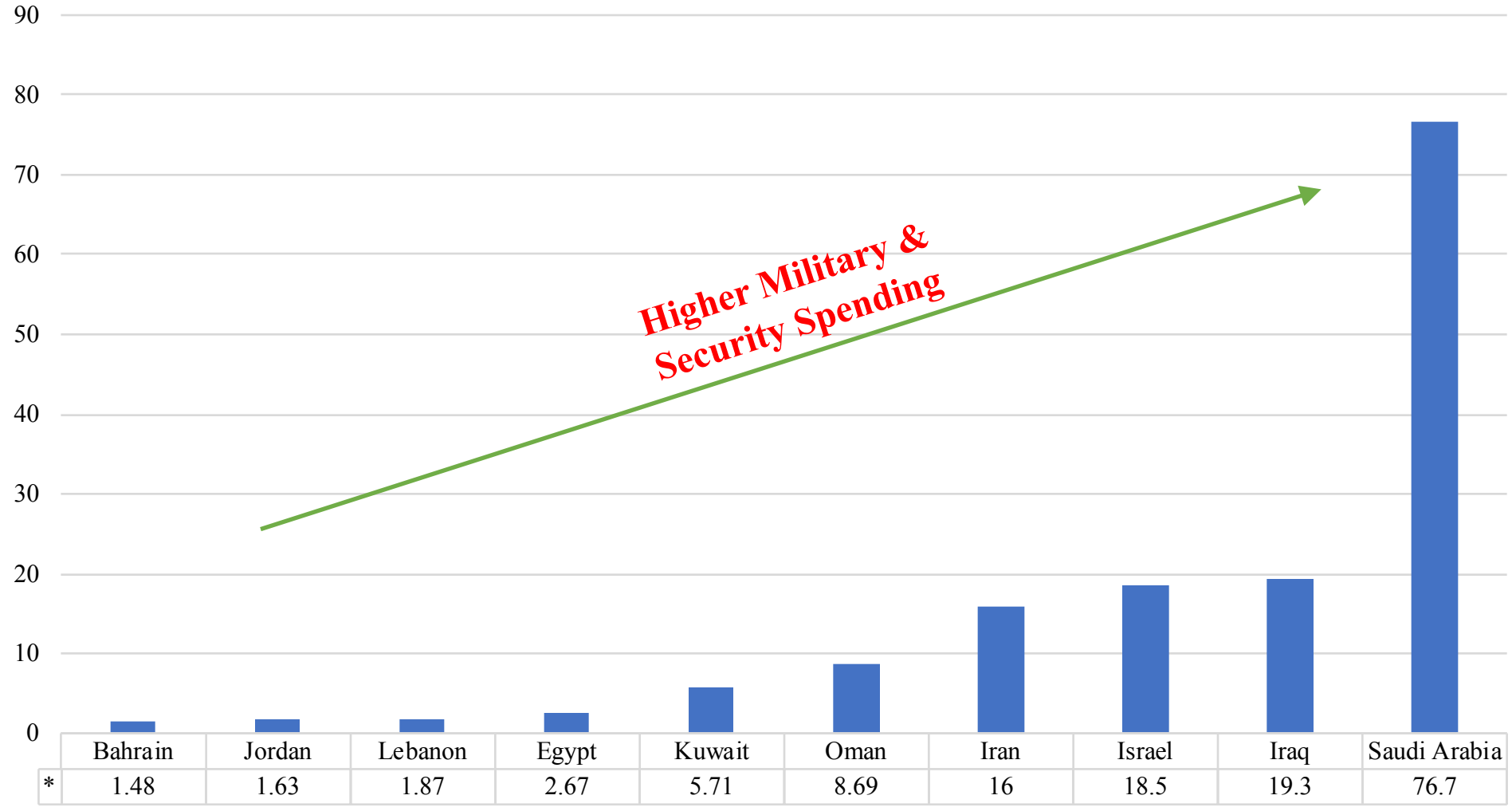


	Bahrain	Oman	Kuwait	Qatar	UAE	Saudi Arabia	GCC	Iran	Iraq	Turkey	Israel
IISS	1,480	8,687	5,710	6,120	30,000	76,678	128,675	16,035	19,271	7,983	18,547
SIPRI	1,397	8,687	6,831			69,413		14,548	7,416	18,189	16,489
IHS	1,544	8,901	7,107	5,676	19,760	52,098	95,086	16,201	7,783		

Note: UAE estimate is authors' estimate.
Source: Adapted by the author from IISS, *Military Balance 2018, Chapter Seven, "The Middle East and North Africa."*. SIPRI Military Expenditure Database, 2017 https://www.sipri.org/databases/milex. Also, IHS Markit Jane's Sentinel Security Assessment – The Gulf States

A5:IISS: Comparative Military and Security Spending in 2017

(Current $US Billions)



	Bahrain	Jordan	Lebanon	Egypt	Kuwait	Oman	Iran	Israel	Iraq	Saudi Arabia
*	1.48	1.63	1.87	2.67	5.71	8.69	16	18.5	19.3	76.7

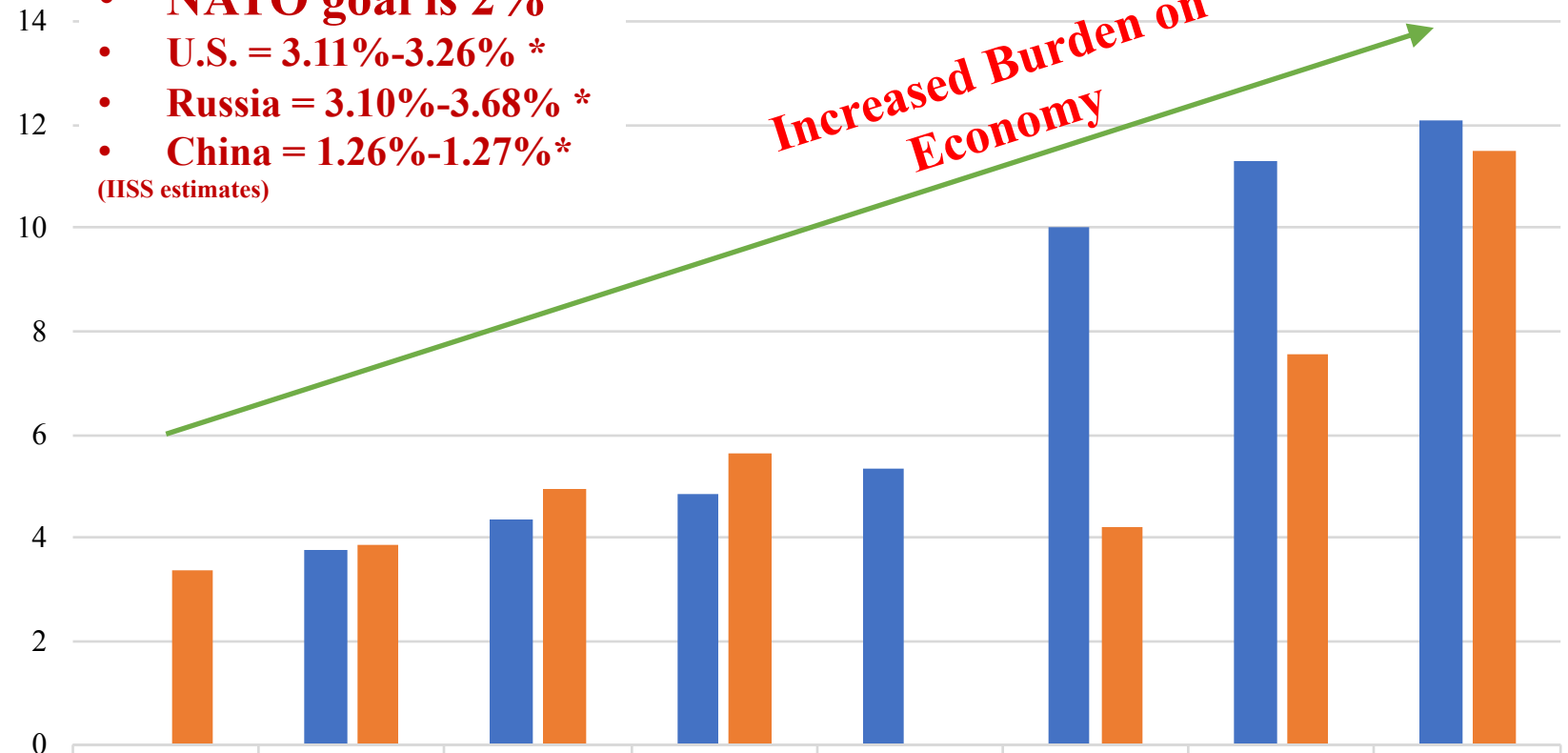
Source: Adapted by the author from IISS, *Military Balance 2017, Chapter Seven, "The Middle East and North Africa."*.

No data available for Qatar, Libya, UAE, and Syria

A6: Comparative Estimates of Military Spending as Percent of GDP, 2017

- NATO goal is 2%
- U.S. = 3.11%-3.26% *
- Russia = 3.10%-3.68% *
- China = 1.26%-1.27%*

(IISS estimates)



	Qatar	Iran	Bahrain	Kuwait	Israel	Iraq	Saudi Arabia	Oman
IISS		3.75	4.37	4.83	5.33	10	11.3	12.08
IHS	3.38	3.85	4.95	5.66		4.23	7.55	11.51

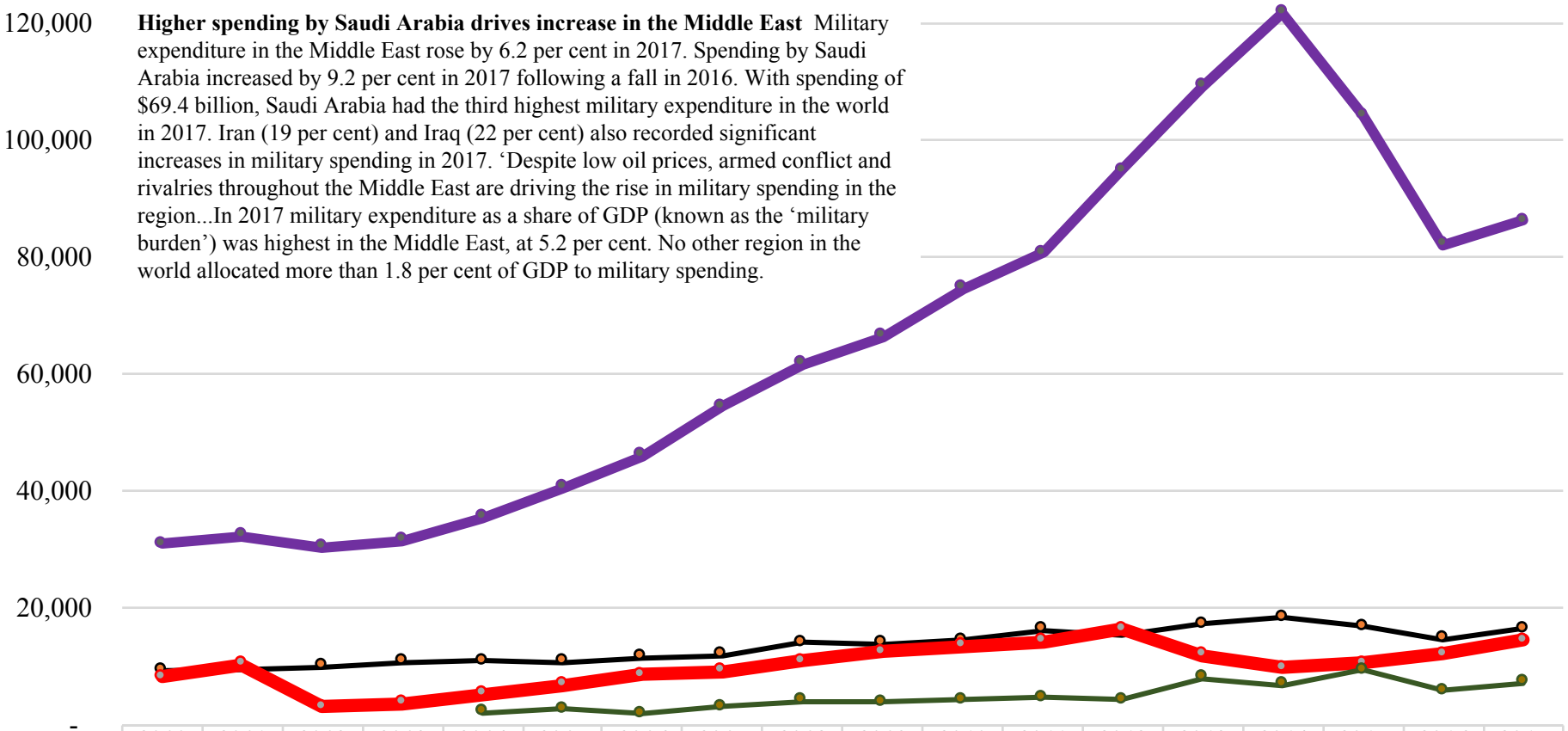
Note: Qatar & UAE data unavailable for IISS and IIHS & IHS respectively. Syria, and Yemen are at war and no estimate is possible, but must exceed 8%. NATO goals is 2%. U.S. is 3.26%, Russia is 3.68%, Chia is 1.27%.

Source: Adapted by the author from IISS, *Military Balance 2018, Chapter Seven, "The Middle East and North Africa."*. Also adapted by author from IHS Markit, *Jane's Sentinel Security Assessment* – The Gulf States 2017

A7: SIPRI: Comparative Regional Military Spending, 2000-2017

(Current $USD billions)

Higher spending by Saudi Arabia drives increase in the Middle East Military expenditure in the Middle East rose by 6.2 per cent in 2017. Spending by Saudi Arabia increased by 9.2 per cent in 2017 following a fall in 2016. With spending of $69.4 billion, Saudi Arabia had the third highest military expenditure in the world in 2017. Iran (19 per cent) and Iraq (22 per cent) also recorded significant increases in military spending in 2017. 'Despite low oil prices, armed conflict and rivalries throughout the Middle East are driving the rise in military spending in the region...In 2017 military expenditure as a share of GDP (known as the 'military burden') was highest in the Middle East, at 5.2 per cent. No other region in the world allocated more than 1.8 per cent of GDP to military spending.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Israel	9,365	9,565	10,05	10,78	11,08	10,88	11,52	12,08	14,15	13,99	14,57	16,31	15,54	17,30	18,48	16,96	14,78	16,48
Iran	8,327	10,37	3,244	3,717	5,244	6,797	8,751	9,331	11,08	12,58	13,56	14,27	16,49	11,99	9,901	10,58	12,26	14,54
GCC	30,99	32,30	30,37	31,63	35,45	40,55	46,01	54,57	61,87	66,57	74,69	80,80	94,98	109,3	121,7	104,4	82,20	86,32
Iraq					2,101	2,836	2,035	3,115	4,118	3,925	4,423	4,766	4,334	7,991	6,956	9,527	5,970	7,284

Source: SIPRI Military Expenditure Database, 2017; https://www.sipri.org/databases/milex; and https://www.sipri.org/media/press-release/2018/global-military-spending-remains-high-17-trillion

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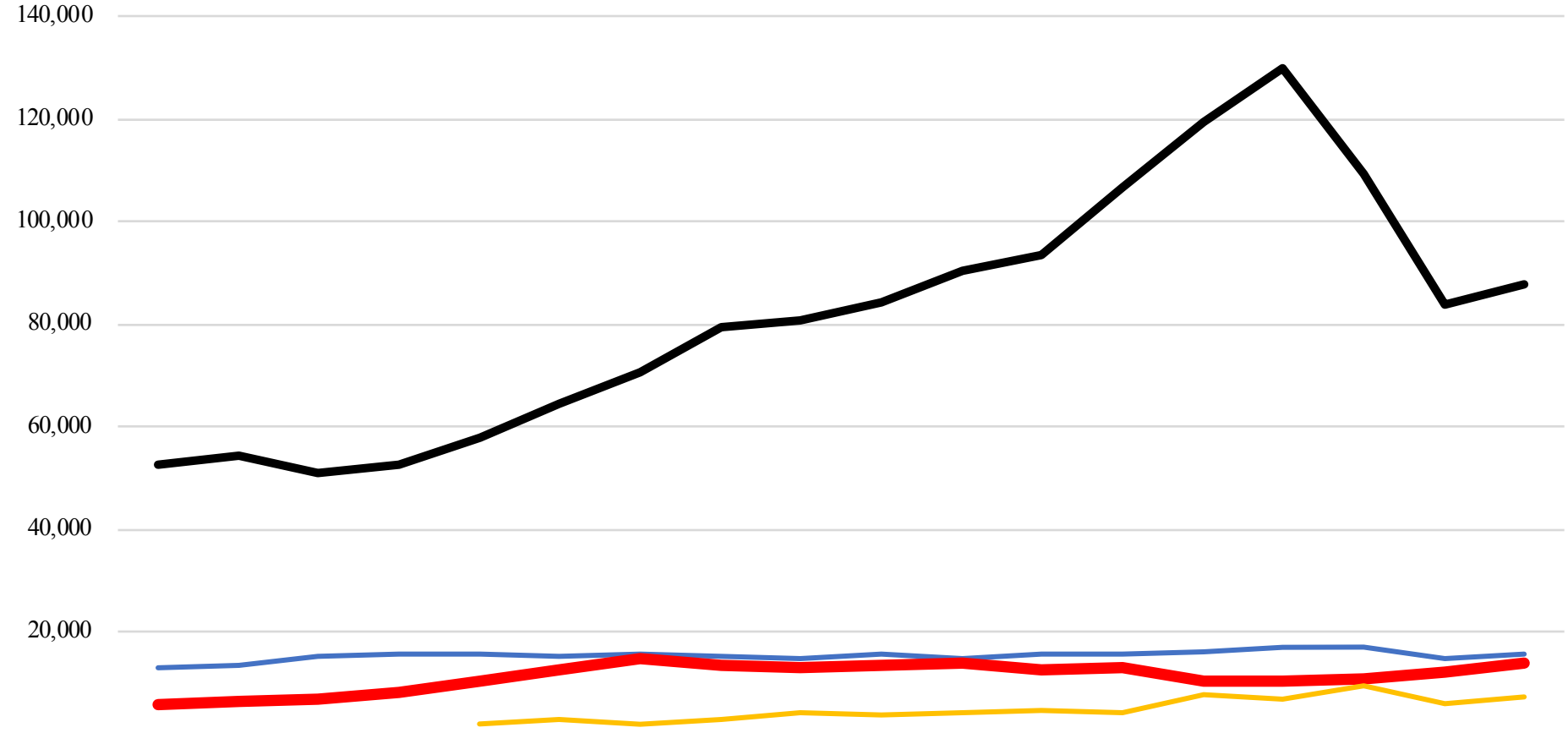
A8: SIPRI: Comparative Regional Military Spending, 2000-2017

(Constant 2016 $USD billions)

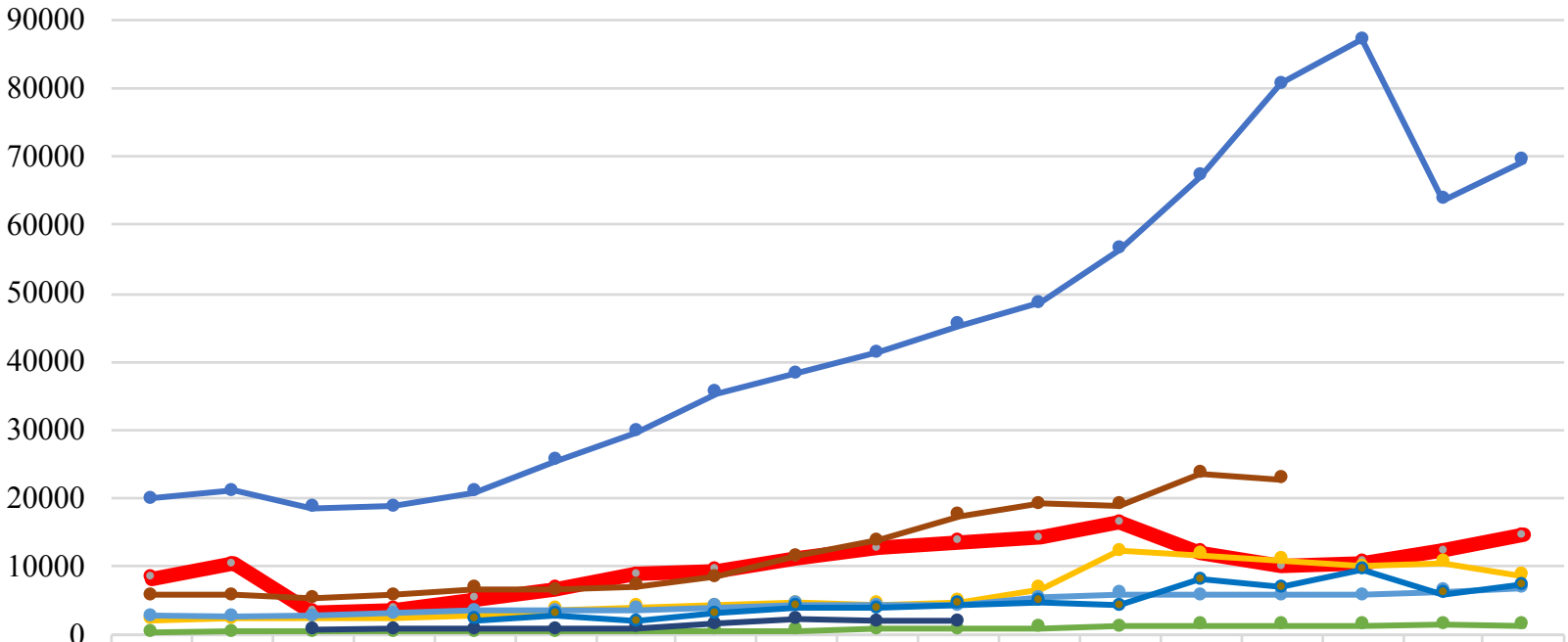


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Israel	13,03	13,58	15,22	15,59	15,83	15,35	15,81	15,21	14,87	15,60	15,04	15,58	15,72	16,14	17,00	17,06	14,78	15,50
Iran	5,862	6,525	7,024	8,198	10,59	12,59	14,82	13,64	13,11	13,72	13,96	12,61	13,12	10,36	10,28	10,81	12,26	14,08
GCC	52,42	54,47	50,97	52,55	57,76	64,35	70,43	79,34	80,86	84,23	90,46	93,32	106,4	119,3	129,8	109,3	83,97	87,89
Iraq					2,101	2,836	2,035	3,115	4,118	3,925	4,423	4,766	4,334	7,991	6,956	9,527	5,970	7,284

Source: SIPRI Military Expenditure Database, 2017
https://www.sipri.org/databases/milex

A9: SIPRI: Comparative Gulf Military Spending, 2000-2017

(in Current $USD billions)



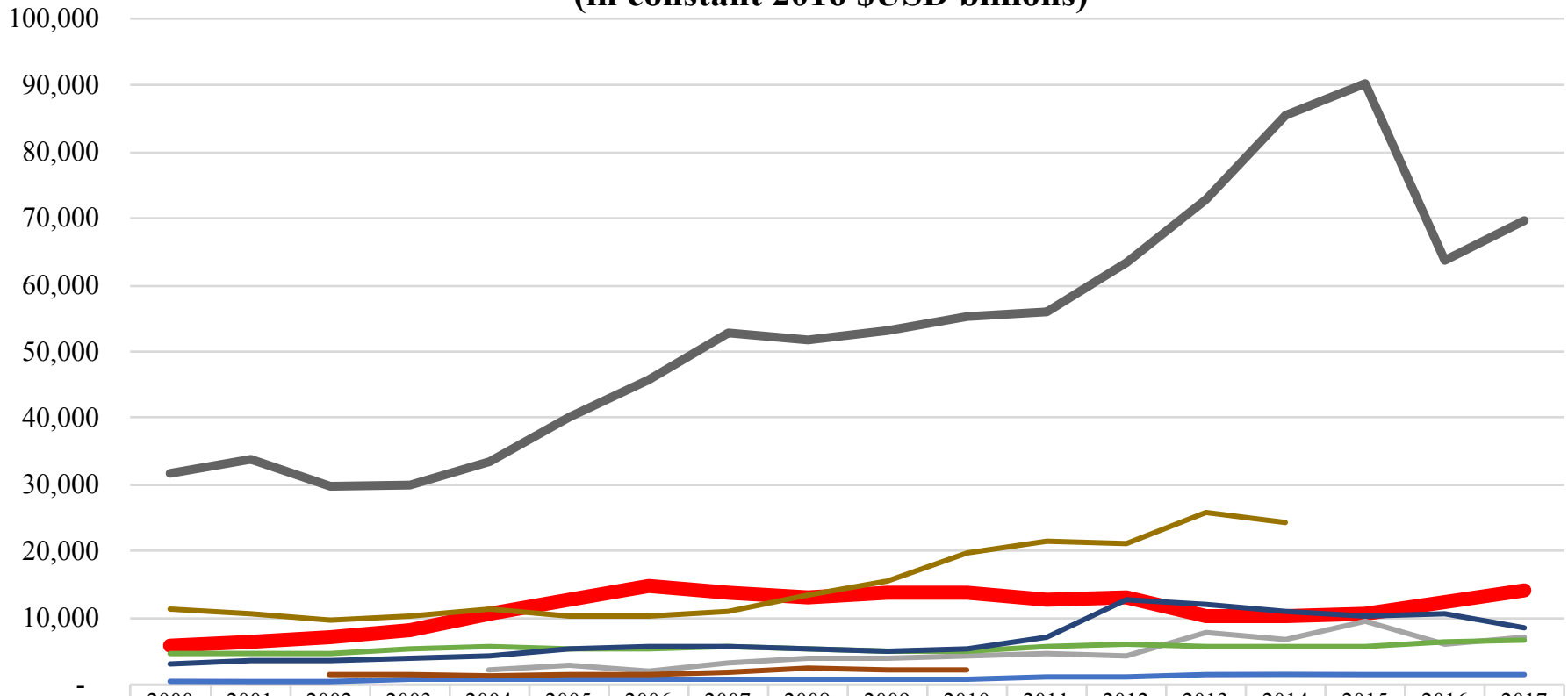
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Saudi Arabia	19964	21027	18502	18747	20910	25392	29581	35470	38223	41267	45245	48531	56498	67020	80762	87186	63673	69413
Iran	8327	10379	3244	3717	5244	6797	8751	9331	11082	12585	13561	14278	16494	11997	9901	10589	12264	14548
Oman	2103	2427	2491	2626	2974	3652	4030	4326	4617	4490	4895	6668	12334	11688	10951	10045	10581	8687
Kuwait	2697	2686	2822	3131	3450	3509	3598	4116	4430	4209	4335	5394	5942	5698	5832	5735	6447	6831
Bahrain	359	372	444	516	532	513	574	643	720	828	843	1034	1182	1348	1475	1442	1506	1397
Qatar			761	785	772	888	1066	1562	2318	1948	1877							
UAE	5876	5798	5354	5835	6817	6604	7165	8461	11572	13836	17505	19182	19024	23561	22755			
Iraq					2101	2836	2035	3115	4118	3925	4423	4766	4334	7991	6956	9527	5970	7284

Saudi Arabia Iran Oman Kuwait Bahrain Qatar UAE Iraq

Source: SIPRI Military Expenditure Database, 2017
https://www.sipri.org/databases/milex

A10: SIPRI Comparative Military Spending, 2000-2017

(in constant 2016 $USD billions)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bahrain	489	513	615	704	709	667	731	792	858	960	958	1,179	1,312	1,448	1,544	1,482	1,506	1,384
Iran	5,862	6,525	7,024	8,198	10,593	12,597	14,824	13,647	13,114	13,728	13,962	12,616	13,125	10,367	10,281	10,814	12,264	14,086
Iraq					2,101	2,836	2,035	3,115	4,118	3,925	4,423	4,766	4,334	7,991	6,956	9,527	5,970	7,284
Kuwait	4,773	4,691	4,841	5,217	5,615	5,434	5,372	5,706	5,254	5,108	5,014	5,726	6,200	5,865	5,853	5,895	6,447	6,693
Oman	3,116	3,625	3,732	3,926	4,414	5,321	5,689	5,764	5,487	5,135	5,424	7,099	12,762	11,945	11,079	10,155	10,581	8,417
Qatar			1,422	1,433	1,321	1,395	1,498	1,930	2,489	2,199	2,171							
Saudi Arabia	31,866	33,940	29,796	30,015	33,368	40,207	45,802	52,758	51,781	53,209	55,379	56,132	63,514	72,791	85,435	90,258	63,673	69,521
UAE	11,255	10,803	9,693	10,244	11,394	10,394	10,319	10,965	13,357	15,726	19,722	21,424	21,108	25,857	24,400			

Source: SIPRI Military Expenditure Database, 2017
https://www.sipri.org/databases/milex

A11: SIPRI: Iran Military Spending, 2000-2017

(Current $USD billions)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Iran	8327	10379	3244	3717	5244	6797	8751	9331	11082	12585	13561	14278	16494	11997	9901	10589	12264	14548

Source: SIPRI Military Expenditure Database, 2017
https://www.sipri.org/databases/milex

A12: Iran's 2018-2019 Defense Budget - Key Takeaways

Iran's 2018-2019 defense bill suggests an upward trajectory for defense spending, as well as key changes to how resources are being allocated.

- **Official defense spending is higher than previously announced. Iran's total military expenditure is estimated at ~USD$19.6 billion, placing Iran's defense spending at 7.5% of Iran's total budget. This is higher than the 5% defense spending that senior Iranian military and defense officials have previously called for.**
- **The devaluation of the Rial against the US dollar from April 2018 to October 2018 meant that defense spending in dollar terms decreased from USD$21.4bn to USD$19bn in just six months. Even so, when measured in real terms, Iran's military expenditure is still 53% higher in 2018 than it was five years ago.**
- **Iran's 2018-2019 defense saw an 84% rise in allocations for law enforcements forces (LEF) from the previous year. LEF funding overtook the budget for theArtesh (regular military), commanding roughly 16% of the entire defense budget while the Artesh commands ~12%.**
- **The 2018-2019 budget sees the IRGC account for 33% of the entire defense budget (excluding various educational and ideological facilities), putting the official IRGC budget at approximately USD$6.4bn.**
- **In July 2017, a parliamentary bill set out funding for Quds Force and the missile program, amounting to USD$213m each. These amounts were not included in the 2018-2018 defense budget bill, confirming there is extra-budgetary funding available to the military outside the defense budget**.

Source: Chandler, Jennifer. IISS Military Balance+. November 13, 2018

B. Country Military Expenditures: U.S. State Department Data

Military Expenditures and Their Economic Burden

As noted earlier, the U.S. State Department. provides a comprehensive estimate of military spending, arms transfers, and military personnel in an annual document called ***World Military Expenditures and Arms Transfers (WMEAT)*** **(https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm).** This document provides an authoritative U.S. official estimate of the key financial trends shaping military developments on a global basis, and provides a range of different ways of calculating the military burden for each country. It involves a truly massive analytic effort. As a result, the latest edition was issued at the end of 2017, but only covers trends and developments through 2015.

The WMEAT report provides five different estimates of the best way to convert local currency to directly comparable U.S. dollars, and estimate military spending and the size of a nation's economy in directly comparable terms. Each method leads to significant differences and the full WMEAT report and database should be consulted. The Gulf country pages that follow use *Method 2: Conversion of both military expenditure and GDP a current year-average market exchange rates*. This seems to be the best method for comparing countries that is close to the method broadly used in other studies, but WMEAT offers a variety of methods – including ones designed to estimate foreign country costs in terms of the equivalent of U.S. prices. *The user is strongly recommended to read the WMEAT description of its sources and methods in full*.

- ***Figure B1: Iran***: Virtually every source that explains its estimate on Iran notes that it is difficult to make accurate estimate. Iran does not seem to report many of its expenditures on military industries, the full cost of the role its IRGC plays in its economy, the cost of nuclear weapons related efforts, the cost of arms transfer to outside states and non-state actors, the cost of "volunteers" and "training efforts" outside Iran, and the full cost of its missile programs. The WMEAT data on armed forces personnel size are relatively static from 2005 to 2015, and raise some questions about the reliability of the data on Iran – given the real world shifts in its force structure from year to year. The data in local currency also flag the major difficulties the Iranian inflation and economic in stability raises in making currency conversions.

  WMEAT shows a rise of around 33% in military spending in constant dollars between 2005 and 2015, and a drop from 3.3% of the GDP in 2005 to 2.9% in 2015, Both seem too low. It seems likely that the IISS and SIPRI may well be more correct in estimating that Iran is spending close to 4% of its GDP on m military forces and may well have spent more than 4% through most of the period from 2012-2015 if the cost of its military activities in Syria and Iraq are included. The WMEAT estimates of total military spending are broadly compatible with the SIPRI and WMEAT data, given the probable areas where they may not include the full cost of Iranian activity.

- ***Figure B2: Saudi Arabia:*** Saudi Arabia and all the other Arab Gulf states do not publish credible military spending and arms transfer data. The WMEAT data on Saudi personnel again seem to be so consistent that they only provide nominal military personnel figures. The military spending data are broadly consistent with the SIPRI data, as are the data on military spending as a

percent of GDP, but all sources differ in detail. WMEAT shows a rise of around 190% in military spending in constant dollars between 2005 and 2015, and from 7.4% of the GDP in 2005 to 13.1% in 2015. The sharp rise in spending and percent of GDP from 2005 to 2015 tracks with the rise in Saudi arms imports and the beginning of major spending on the war in Yemen. The percentage of GDP from 2013 onwards seem unaffordable on a sustained basis and likely to present serious problems in funding the modernization of Saudi economy and the Saudi economic and modernization plan. The damage they may do to domestic stability may well offset their marginal military value.

- ***Figure B3: The UAE:*** The UAE does not report publicly on its military spending. The steady rises in UAE spending and in its spending as a percent of GDP shown in Figure B3, however, is almost certainly correct – although it may not reflect the full impact of UAE arms spending and costs early in the Yemen War. These spending patterns reflect the UAE's emphasis on force quality rather than force size – something that has led a number of observers to see the UAE as the best trained and most combat ready set of forces in the Gulf. WMEAT shows a rise of around 216% in military spending in constant dollars between 2005 and 2015. The percentage of it GDP that the UAE spends on military forces is high – probably now well above 8% – although smaller than in Saudi Arabia. It begins to raise questions about whether it is sustainable for a federation that has areas significantly less wealthy than the rest, and uncertain plans to sustain its current wealth.

- ***Figure B4: Bahrain:*** Bahrain's small forces have become steadily more expensive with time, and the WMEAT data track broadly with the IISS and SIPRI data. Like the UAE, Bahrain has emphasized force quality over quantity, and placed a heavy emphasis on modernizing its air forces. The resulting military burden, however, is problematic. WMEAT shows a rise of around 200% in military spending in constant dollars between 2005 and 2015, and from 3.0% of the GDP in 2005 to 4.7% in 2015. The IHS Jane's estimate seems to be higher. This percentage may not be sustainable for a country with deep internal tensions between its Sunni ruling elite and Shi'ite majority, and that needs to invest heavily in job creation and internal economic development and stability.

- ***Figure B5: Kuwait:*** Kuwait is a smaller Gulf state that has invested heavily in creating some effective force elements and basing and prepositioning that would allow rapid U.S. reinforcement and power projection. The WMEAT data reflect the same broad trends in military spending as the IISS and SIPRI data but seem to reflect higher levels of military manning. WMEAT estimates that Kuwait increased its military expenditures by about 36% in constant $US 2015 between 2005 and 2015. Military expenditures as a percent of GDP generally ranged from 4% to 5% --with higher levels in years of major arms buys. Kuwait has the petroleum export and investment income to sustain such spending, but an uncertain political consensus for doing so.

- ***Figure B5: Oman:*** Oman has long reported some of the highest spending on military forces as a percent of GDP of any Gulf state. The WMEAT report shows a mean of 11.5% between 2005 and 2015, with levels fluctuating from a low of 7.6% in 2008 to $16.1% in 2012. The WMEAT and SIPRI data on total spending differ more sharply than usual but show the same general rise. WMEAT shows a rise in total spending of 126% between 2005 and 2015. SIPRI shows a rise of 150%. As noted earlier, Oman is investing in modern combat aircraft and ships, and facilities that can support U.S. and British power projection. These will improve its real-world mission capability, but Oman does face major development and job creation challenges and this percentage seems unsustainable even if the figures for Omani spending include more police and rule of law forces than those of other Gulf states.

- ***Figure B7: Qatar:*** Qatar has some effective combat elements but seems to invest in military forces more as away of creating jobs and using arms imports to win support from the U.S., Britain France and now Russia than a serous effort to create effective forces. The Saudi-UAE-Bahrain-Egypt boycott may change this, but Qatar's initial reaction seems to have been another series of major new buy of F-15 combat aircraft from the U.S. and Typhoons from Britain, having bought Rafales from France in 2015. It also is buying more longer-range anti-ship missiles, radars AH-64s, combat ships, and tanks. WMEAT shows a rise of around 340% in military spending in constant dollars between 2005 and 2015 (before its neighbors boycotted it), but Qatar's petroleum and investment wealth minimized the burden. Military spending as a percent of GDP only rose from 2.2% of the GDP in 2005 to 3.1% in 2015.

- ***Figure B8: Iraq****:* The Iraq data reflect the fact that Iraq spent comparatively little on defense in the period immediately after the U.S. invasion in 2003. The U.S. covered many security costs. However, Iraq took on a growing spending burden as time went on. Spending was driven by a growing fight against Sunni religious extremists, and rose from $880 million in 2005, to $2,220 million in 2006, and then steadily rose to $5,190 million in 2008 and $11,000 in 2011 (the year U.S. combat forces left Iraq).

  Sectarian strife – followed by the war with ISIS from early 2014 onwards – raised spending to $13,000 million in 2013, and $18,000 million in 2015. these figures seem far more correct than the SIPRI estimates for the more recent years –which do not seem to realistically cost Iraq's share of the fighting against ISIS and purchase of new heavy weapons and aircraft. The WMEAT data show a rise from 1.5% of GDP in 2005 to 10% in 2015. This tracks with the IISS data that show 10% for 2017, while SIPRI on shows 4.23%. This spending burden is already unsustainable given Iraq's recovery and reconstruction costs from its most recent fighting, low levels of development since 2003,and inheritance of a deeply flawed structure of development and employment from previous regimes.

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B1: Iran

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	520	520	520	510	510	510	510	500	500	500	500	509
- Armed forces personnel as % of population	0.72%	0.71%	0.70%	0.68%	0.68%	0.66%	0.65%	0.64%	0.63%	0.62%	0.61%	0.66%
- Armed forces personnel as % of labor force	2.10%	2.10%	2.10%	2.20%	2.10%	2.10%	2.00%	2.00%	1.90%	1.90%	1.90%	2.00%
Population (midyear, in millions)	72.3	73.2	74.1	75.0	76.0	76.9	77.9	78.9	79.9	80.8	81.8	77.0
Labor force (LF) (midyear, in millions)	24.6	24.6	24.6	23.8	24.5	24.5	25.0	25.4	26.1	26.5	26.9	25.1
- Labor force as % of population	34.0%	33.6%	33.2%	31.8%	32.2%	31.9%	32.1%	32.3%	32.6%	32.7%	32.9%	32.7%
Armed forces composition (in thousands)												
- Army (land forces)	320	320	320	320	320	320	320	320	320	320	320	320.0
- Navy (may include marines)	18	18	18	18	18	18	18	18	18	18	18	18.0
- Air force (may include air defense)	50	50	50	45	45	40	40	35	35	35	30	41.4
- Other regular forces (incl. joint & support)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	130	130	130	130	130	130	130	130	130	130	130	130.0
Converted at real MER, base year = 2015												
Military expenditure (ME)												
- Current dollars (millions)	8,730	9,520	9,600	9,730	9,980	11,400	10,600	11,500	9,710	9,930	11,600	
- constant 2015 dollars (millions)	10,400	11,000	10,800	10,800	11,000	12,400	11,300	12,000	9,990	10,000	11,600	11,000
ME/AF (constant 2015 dollars)	20,100	21,300	20,900	21,000	21,400	24,400	22,200	23,800	19,900	19,900	23,300	21,700
ME per capita (constant 2015 dollars)	140	150	150	140	140	160	140	150	130	120	140	143
Gross domestic product (GDP)												
- Current dollars (millions)	264,000	287,000	322,000	331,000	342,000	368,000	390,000	371,000	370,000	393,000	399,000	
- constant 2015 dollars (millions)	315,000	333,000	364,000	367,000	376,000	400,000	415,000	388,000	381,000	397,000	399,000	376,000
GDP per capita (constant 2015 dollars)	4,360	4,560	4,910	4,890	4,950	5,200	5,330	4,920	4,770	4,910	4,870	4,880
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	7,270	8,570	10,100	11,700	11,700	14,500	16,100	18,100	13,400	10,700	11,600	
- constant 2015 dollars (millions)	8,700	9,940	11,400	12,900	12,800	15,800	17,100	19,000	13,800	10,900	11,600	13,100
ME/AF (constant 2015 dollars)	16,800	19,200	21,900	25,200	25,000	31,000	33,700	37,700	27,500	21,600	23,300	25,700
ME per capita (constant 2015 dollars)	120	140	150	170	170	200	220	240	170	130	140	170
Gross domestic product (GDP)												
- Current dollars (millions)	220,000	259,000	337,000	397,000	399,000	468,000	592,000	587,000	512,000	425,000	399,000	
- constant 2015 dollars (millions)	263,000	300,000	381,000	440,000	439,000	508,000	630,000	614,000	526,000	430,000	399,000	448,000
GDP per capita (constant 2015 dollars)	3,640	4,100	5,150	5,870	5,780	6,610	8,090	7,780	6,590	5,320	4,870	5,820

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

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B2: Saudi Arabia

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	220	230	240	240	250	250	250	250	260	260	260	247
- Armed forces personnel as % of population	0.92%	0.97%	0.99%	0.98%	0.98%	0.97%	0.95%	0.96%	0.96%	0.95%	0.94%	0.96%
- Armed forces personnel as % of labor force	2.60%	2.70%	2.70%	2.60%	2.60%	2.40%	2.30%	2.30%	2.20%	2.20%	2.10%	2.40%
Population (midyear, in millions)	23.6	24.1	24.5	24.9	25.3	25.7	26.1	26.5	26.9	27.3	27.8	25.7
Labor force (LF) (midyear, in millions)	8.4	8.8	9.1	9.4	9.7	10.2	10.7	11.2	11.7	12.0	12.3	10.3
- Labor force as % of population	35.7%	36.4%	37.1%	37.7%	38.2%	39.5%	40.8%	42.2%	43.3%	43.9%	44.4%	40.1%
Armed forces composition (in thousands)												
- Army (land forces)	75	75	75	75	75	75	75	75	75	75	75	75.0
- Navy (may include marines)	16	16	15	15	15	15	15	15	15	15	15	14.7
- Air force (may include air defense)	18	18	18	18	18	18	18	18	18	18	18	18.0
- Other regular forces (incl. joint & support)	16	20	20	20	20	20	20	20	20	20	20	20.8
- Paramilitary and irregular forces	90	110	120	120	120	120	120	130	130	130	130	118.0
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	90,700	106,000	123,000	132,000	141,000	172,000	187,000	212,000	251,000	303,000	317,000	
- constant 2015 ncu (millions)	108,000	117,000	130,000	120,000	159,000	165,000	156,000	170,000	203,000	251,000	317,000	172,000
ME/AF (constant 2015 ncu)	499,000	498,000	534,000	496,000	639,000	663,000	624,000	667,000	783,000	967,000	1,220,000	690,000
ME per capita (constant 2015 ncu)	4,570	4,840	5,290	4,830	6,260	6,420	5,950	6,400	7,550	9,170	11,400	6,610
Gross domestic product (GDP)												
- current national currency units (millions)	1,230,000	1,410,000	1,560,000	1,950,000	1,610,000	1,980,000	2,510,000	2,750,000	2,790,000	2,830,000	2,420,000	
- constant 2015 ncu (millions)	1,470,000	1,550,000	1,640,000	1,780,000	1,810,000	1,900,000	2,090,000	2,200,000	2,260,000	2,340,000	2,420,000	1,950,000
GDP per capita (constant 2015 ncu)	62,000	64,300	67,000	71,400	71,500	73,800	79,900	82,900	83,800	85,600	87,300	75,400
(ME/AF) / (GDP/LF)	2.9	2.8	3.0	2.6	3.4	3.6	3.2	3.4	4.0	5.0	6.2	3.6
ME/GDP ("military burden")	7.4%	7.5%	7.9%	6.8%	8.8%	8.7%	7.5%	7.7%	9.0%	10.7%	13.1%	8.6%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	24,200	28,400	32,900	35,200	37,600	45,800	49,900	56,600	67,000	80,800	84,500	
- constant 2015 dollars (millions)	29,000	32,900	37,100	39,000	41,300	49,800	53,100	59,200	68,900	81,600	84,500	52,400
ME/AF (constant 2015 dollars)	134,000	141,000	153,000	160,000	166,000	200,000	213,000	233,000	266,000	315,000	326,000	212,000
ME per capita (constant 2015 dollars)	1,220	1,370	1,520	1,560	1,630	1,940	2,030	2,230	2,560	2,990	3,050	2,040
Gross domestic product (GDP)												
- Current dollars (millions)	328,000	377,000	416,000	520,000	429,000	527,000	670,000	734,000	744,000	754,000	646,000	
- constant 2015 dollars (millions)	393,000	437,000	470,000	576,000	472,000	572,000	713,000	767,000	766,000	762,000	646,000	598,000
GDP per capita (constant 2015 dollars)	16,600	18,200	19,200	23,100	18,600	22,200	27,300	28,900	28,400	27,900	23,300	23,200

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

B3: UAE

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	65	65	65	65	65	65	65	65	65	65	65	65
- Armed forces personnel as % of population	1.60%	1.50%	1.50%	1.40%	1.40%	1.30%	1.30%	1.20%	1.20%	1.20%	1.10%	1.30%
- Armed forces personnel as % of labor force	2.30%	1.90%	1.60%	1.40%	1.20%	1.10%	1.10%	1.00%	1.00%	1.00%	1.00%	1.20%
Population (midyear, in millions)	4.1	4.3	4.4	4.6	4.8	5.0	5.2	5.3	5.5	5.6	5.8	5.0
Labor force (LF) (midyear, in millions)	2.9	3.3	4.0	4.6	5.3	5.8	6.1	6.2	6.3	6.3	6.3	5.2
- Labor force as % of population	69.8%	78.3%	89.1%	100.4%	109.9%	117.1%	118.6%	117.4%	114.5%	111.5%	109.2%	104.7%
Armed forces composition (in thousands)												
- Army (land forces)	60	60	60	60	60	60	60	60	60	60	60	58.0
- Navy (may include marines)	3	3	3	3	3	3	3	3	3	3	3	2.5
- Air force (may include air defense)	4	4	4	4	4	4	4	4	4	4	4	4.2
- Other regular forces (incl. joint & support)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	0	0	0	0	0	0	0	0	0	0	0	0.0
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	24,300	30,600	34,000	46,200	50,800	60,700	70,400	72,900	87,800	85,700	91,900	
- constant 2015 ncu (millions)	35,100	39,500	39,100	44,800	58,000	62,500	62,600	64,500	78,200	76,100	91,900	59,300
ME/AF (constant 2015 ncu)	544,000	612,000	606,000	691,000	895,000	964,000	966,000	996,000	1,210,000	1,170,000	1,420,000	916,000
ME per capita (constant 2015 ncu)	8,580	9,250	8,790	9,690	12,100	12,600	12,200	12,100	14,300	13,500	15,900	11,700
Gross domestic product (GDP)												
- current national currency units (millions)	663,000	816,000	947,000	1,160,000	931,000	1,050,000	1,280,000	1,370,000	1,430,000	1,480,000	1,360,000	
- constant 2015 ncu (millions)	959,000	1,050,000	1,090,000	1,120,000	1,060,000	1,080,000	1,140,000	1,210,000	1,270,000	1,310,000	1,360,000	1,150,000
GDP per capita (constant 2015 ncu)	235,000	247,000	245,000	243,000	222,000	217,000	221,000	228,000	232,000	233,000	235,000	233,000
(ME/AF) / (GDP/LF)	1.6	1.9	2.2	2.9	4.4	5.2	5.2	5.1	6.0	5.6	6.6	4.2
ME/GDP ("military burden")	3.7%	3.7%	3.6%	4.0%	5.5%	5.8%	5.5%	5.3%	6.2%	5.8%	6.8%	5.1%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	6,600	8,320	9,270	12,600	13,800	16,500	19,200	19,800	23,900	23,300	25,000	
- constant 2015 dollars (millions)	7,900	9,650	10,500	14,000	15,200	18,000	20,400	20,700	24,600	23,600	25,000	17,200
ME/AF (constant 2015 dollars)	122,000	150,000	162,000	215,000	235,000	277,000	315,000	320,000	380,000	364,000	386,000	266,000
ME per capita (constant 2015 dollars)	1,930	2,260	2,360	3,020	3,170	3,610	3,970	3,900	4,490	4,190	4,330	3,480
Gross domestic product (GDP)												
- Current dollars (millions)	181,000	222,000	258,000	315,000	254,000	286,000	349,000	373,000	389,000	402,000	370,000	
- constant 2015 dollars (millions)	216,000	258,000	291,000	350,000	279,000	311,000	371,000	390,000	400,000	406,000	370,000	331,000
GDP per capita (constant 2015 dollars)	52,900	60,400	65,600	75,700	58,100	62,500	72,100	73,500	73,000	72,200	64,100	66,800

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

B4: Bahrain

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	12	12	13	13	12	12	12	12	12	12	12	12
- Armed forces personnel as % of population	1.30%	1.30%	1.20%	1.10%	1.10%	1.00%	1.00%	0.98%	0.96%	0.93%	0.91%	1.10%
- Armed forces personnel as % of labor force	2.90%	2.60%	2.30%	2.10%	1.80%	1.70%	1.70%	1.70%	1.70%	1.60%	1.60%	1.90%
Population (midyear, in millions)	0.9	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.4	1.2
Labor force (LF) (midyear, in millions)	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7
- Labor force as % of population	46.3%	48.5%	51.1%	54.6%	58.3%	61.0%	60.6%	59.4%	57.9%	56.5%	55.6%	55.8%
Armed forces composition (in thousands)												
- Army (land forces)	9	8	8	8	8	8	8	8	8	8	8	7.7
- Navy (may include marines)	1	1	1	1	1	1	1	1	1	1	1	0.9
- Air force (may include air defense)	1	1	1	2	2	2	2	2	2	2	2	1.5
- Other regular forces (incl. joint forces)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	2	2	2	2	2	2	2	2	2	2	2	2.2
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	180	200	230	260	300	310	390	440	500	560	550	
- constant 2015 ncu (millions)	230	230	240	250	320	310	360	390	450	500	550	348
ME/AF (constant 2015 ncu)	18,600	18,700	18,800	19,400	26,500	25,900	29,600	32,000	36,600	41,100	45,100	28,400
ME per capita (constant 2015 ncu)	250	240	220	220	280	260	300	310	350	380	410	294
Gross domestic product (GDP)												
- current national currency units (millions)	6,000	6,960	8,170	9,670	8,620	9,670	10,800	11,600	12,200	12,600	11,700	
- constant 2015 ncu (millions)	7,460	7,940	8,600	9,140	9,370	9,780	9,970	10,300	10,900	11,400	11,700	9,690
GDP per capita (constant 2015 ncu)	8,150	8,070	8,160	8,250	8,190	8,290	8,210	8,290	8,510	8,660	8,690	8,310
(ME/AF) / (GDP/LF)	1.1	1.1	1.2	1.3	1.9	1.9	2.2	2.3	2.5	2.7	2.9	1.9
ME/GDP ("military burden")	3.0%	2.9%	2.8%	2.7%	3.4%	3.2%	3.6%	3.8%	4.1%	4.4%	4.7%	3.5%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	490	540	600	690	780	820	1,050	1,160	1,340	1,480	1,470	
- constant 2015 dollars (millions)	580	630	680	770	860	890	1,110	1,220	1,380	1,490	1,470	1,010
ME/AF (constant 2015 dollars)	47,700	50,500	53,700	60,600	71,300	74,000	91,000	99,300	112,000	122,000	120,000	81,900
ME per capita (constant 2015 dollars)	640	640	640	690	750	760	920	970	1,070	1,140	1,090	866
Gross domestic product (GDP)												
- Current dollars (millions)	16,000	18,500	21,700	25,700	22,900	25,700	28,800	30,700	32,500	33,400	31,100	
- constant 2015 dollars (millions)	19,100	21,500	24,600	28,500	25,200	27,900	30,600	32,100	33,500	33,700	31,100	28,000
GDP per capita (constant 2015 dollars)	20,800	21,800	23,300	25,700	22,000	23,700	25,200	25,800	26,100	25,700	23,100	24,100

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

B5: Kuwait

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	25	25	25	25	25	25	25	25	25	25	25	23
- Armed forces personnel as % of population	1.00%	0.99%	0.98%	0.96%	0.94%	0.92%	0.90%	0.88%	0.86%	0.85%	0.84%	0.92%
- Armed forces personnel as % of labor force	2.00%	1.90%	1.80%	1.70%	1.60%	1.50%	1.40%	1.30%	1.20%	1.20%	1.10%	1.50%
Population (midyear, in millions)	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.7	2.7	2.7	2.8	2.5
Labor force (LF) (midyear, in millions)	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	1.6
- Labor force as % of population	50.1%	51.6%	53.6%	56.1%	59.4%	62.7%	65.1%	67.7%	70.6%	73.1%	75.0%	62.8%
Armed forces composition (in thousands)												
- Army (land forces)	11	11	11	11	11	11	11	11	11	11	11	11.0
- Navy (may include marines)	2	2	2	2	2	2	2	2	2	2	2	2.2
- Air force (may include air defense)	3	3	3	3	3	3	3	3	3	3	3	2.5
- Other regular forces (incl. joint & support)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	7	7	8	8	8	8	8	8	8	8	8	7.6
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	1,020	1,050	1,190	1,200	1,230	1,250	1,470	1,680	1,600	1,690	1,660	
- constant 2015 ncu (millions)	1,160	1,030	1,120	940	1,170	1,070	1,080	1,140	1,090	1,230	1,660	1,150
ME/AF (constant 2015 ncu)	50,400	44,700	48,000	40,500	50,300	46,000	46,300	49,000	46,700	52,800	71,100	49,600
ME per capita (constant 2015 ncu)	510	440	470	390	470	420	420	430	400	450	590	455
Gross domestic product (GDP)												
- current national currency units (millions)	23,600	29,500	32,600	39,600	30,500	33,100	42,500	48,700	49,400	46,300	34,300	
- constant 2015 ncu (millions)	26,800	28,800	30,500	31,300	29,000	28,400	31,100	33,100	33,500	33,700	34,300	30,900
GDP per capita (constant 2015 ncu)	11,900	12,400	12,800	12,800	11,700	11,100	12,000	12,500	12,400	12,300	12,300	12,200
(ME/AF) / (GDP/LF)	2.1	1.9	2.0	1.8	2.6	2.6	2.5	2.6	2.6	3.1	4.3	2.6
ME/GDP ("military burden")	4.3%	3.6%	3.7%	3.0%	4.0%	3.8%	3.5%	3.4%	3.2%	3.7%	4.8%	3.7%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	3,500	3,630	4,200	4,450	4,270	4,370	5,340	6,000	5,650	5,940	5,500	
- constant 2015 dollars (millions)	4,180	4,210	4,750	4,940	4,700	4,740	5,690	6,270	5,820	6,010	5,500	5,160
ME/AF (constant 2015 dollars)	182,000	183,000	204,000	212,000	202,000	204,000	244,000	269,000	250,000	258,000	236,000	222,000
ME per capita (constant 2015 dollars)	1,850	1,820	2,000	2,030	1,890	1,870	2,190	2,370	2,160	2,190	1,970	2,040
Gross domestic product (GDP)												
- Current dollars (millions)	80,800	102,000	115,000	147,000	106,000	115,000	154,000	174,000	174,000	163,000	114,000	
- constant 2015 dollars (millions)	96,600	118,000	130,000	163,000	116,000	125,000	164,000	182,000	179,000	164,000	114,000	141,000
GDP per capita (constant 2015 dollars)	42,800	50,900	54,500	67,100	46,800	49,300	63,200	68,800	66,500	59,900	40,900	55,700

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

B6: Oman

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	45	45	45	45	45	45	45	45	45	45	45	44
- Armed forces personnel as % of population	1.60%	1.60%	1.60%	1.50%	1.50%	1.50%	1.50%	1.40%	1.40%	1.40%	1.30%	1.50%
- Armed forces personnel as % of labor force	4.80%	4.50%	4.30%	4.10%	3.70%	3.30%	2.90%	2.50%	2.20%	1.90%	1.80%	2.90%
Population (midyear, in millions)	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.0
Labor force (LF) (midyear, in millions)	0.9	1.0	1.0	1.1	1.2	1.3	1.5	1.8	2.0	2.3	2.5	1.5
- Labor force as % of population	34.1%	35.3%	36.6%	38.1%	40.7%	44.4%	49.8%	56.6%	63.8%	70.3%	75.1%	50.4%
Armed forces composition (in thousands)												
- Army (land forces)	25	25	25	25	25	25	25	25	25	25	25	25.0
- Navy (may include marines)	4	4	4	4	4	4	4	4	4	4	4	4.2
- Air force (may include air defense)	5	5	5	5	5	5	4	4	4	4	4	4.4
- Other regular forces (incl. joint & support)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	10	10	10	10	10	10	10	10	10	10	10	10.4
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	1,400	1,550	1,660	1,780	1,730	1,890	2,560	4,740	4,490	4,210	3,800	
- constant 2015 ncu (millions)	1,950	1,890	1,880	1,500	1,940	1,840	2,130	3,820	3,670	3,430	3,800	2,530
ME/AF (constant 2015 ncu)	44,200	42,900	42,500	33,900	44,100	41,700	48,400	87,000	83,800	78,400	86,800	57,600
ME per capita (constant 2015 ncu)	720	690	670	520	670	620	700	1,240	1,160	1,070	1,160	838
Gross domestic product (GDP)												
- current national currency units (millions)	12,000	14,300	16,200	23,400	18,600	22,500	26,100	29,500	30,400	31,200	26,900	
- constant 2015 ncu (millions)	16,600	17,500	18,300	19,700	21,000	22,000	21,700	23,700	24,800	25,400	26,900	21,600
GDP per capita (constant 2015 ncu)	6,150	6,360	6,520	6,920	7,200	7,400	7,170	7,680	7,860	7,890	8,170	7,210
(ME/AF) / (GDP/LF)	2.4	2.4	2.4	1.9	2.5	2.5	3.4	6.4	6.8	7.0	8.0	4.1
ME/GDP ("military burden")	11.7%	10.8%	10.3%	7.6%	9.3%	8.4%	9.8%	16.1%	14.8%	13.5%	14.2%	11.5%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	3,650	4,030	4,330	4,620	4,490	4,910	6,670	12,300	11,700	11,000	9,880	
- constant 2015 dollars (millions)	4,370	4,680	4,890	5,120	4,940	5,340	7,100	12,900	12,000	11,100	9,880	7,480
ME/AF (constant 2015 dollars)	99,000	106,000	111,000	116,000	112,000	121,000	161,000	294,000	275,000	253,000	226,000	170,000
ME per capita (constant 2015 dollars)	1,620	1,700	1,750	1,790	1,700	1,800	2,340	4,170	3,810	3,440	3,010	2,510
Gross domestic product (GDP)												
- Current dollars (millions)	31,100	37,200	42,100	60,900	48,400	58,600	67,900	76,700	78,900	81,000	69,800	
- constant 2015 dollars (millions)	37,200	43,200	47,600	67,500	53,200	63,700	72,300	80,200	81,200	81,900	69,800	63,400
GDP per capita (constant 2015 dollars)	13,800	15,700	17,000	23,700	18,300	21,500	23,900	25,900	25,700	25,400	21,200	21,300

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

B7: Qatar

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	12	12	12	12	12	12	12	12	12	12	12	12
- Armed forces personnel as % of population	1.30%	1.10%	0.96%	0.85%	0.77%	0.70%	0.65%	0.61%	0.59%	0.57%	0.55%	0.73%
- Armed forces personnel as % of labor force	2.40%	1.90%	1.50%	1.20%	1.00%	0.91%	0.85%	0.82%	0.79%	0.77%	0.75%	1.00%
Population (midyear, in millions)	1.0	1.1	1.3	1.4	1.6	1.7	1.9	2.0	2.0	2.1	2.2	1.7
Labor force (LF) (midyear, in millions)	0.5	0.6	0.8	1.0	1.2	1.3	1.4	1.5	1.5	1.6	1.6	1.2
- Labor force as % of population	52.4%	56.9%	63.3%	69.4%	74.1%	76.9%	76.2%	74.8%	74.5%	73.3%	72.8%	71.1%
Armed forces composition (in thousands)												
- Army (land forces)	9	9	9	9	9	9	9	9	9	9	9	8.5
- Navy (may include marines)	2	2	2	2	2	2	2	2	2	2	2	1.8
- Air force (may include air defense)	2	2	2	2	2	2	2	2	2	2	2	1.8
- Other regular forces (incl. joint & support)	0	0	0	0	0	0	0	0	0	0	0	0.0
- Paramilitary and irregular forces	0	0	0	0	0	0	0	0	0	0	0	0.0
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	3,500	4,300	5,690	8,440	8,100	9,120	13,200	15,400	17,600	19,800	18,800	
- constant 2015 ncu (millions)	4,140	4,690	5,590	6,740	8,540	8,990	11,000	12,000	13,500	15,200	18,800	9,930
ME/AF (constant 2015 ncu)	336,000	381,000	458,000	557,000	712,000	749,000	914,000	1,000,000	1,130,000	1,270,000	1,570,000	825,000
ME per capita (constant 2015 ncu)	4,250	4,190	4,410	4,760	5,450	5,230	5,930	6,170	6,620	7,180	8,570	5,700
Gross domestic product (GDP)												
- current national currency units (millions)	162,000	222,000	290,000	420,000	356,000	455,000	611,000	680,000	723,000	751,000	599,000	
- constant 2015 ncu (millions)	192,000	242,000	285,000	335,000	376,000	449,000	509,000	533,000	557,000	579,000	599,000	423,000
GDP per capita (constant 2015 ncu)	197,000	216,000	225,000	237,000	239,000	261,000	275,000	273,000	273,000	273,000	273,000	249,000
(ME/AF) / (GDP/LF)	0.9	1.0	1.3	1.6	2.2	2.2	2.5	2.7	3.1	3.4	4.2	2.3
ME/GDP ("military burden")	2.2%	1.9%	2.0%	2.0%	2.3%	2.0%	2.2%	2.3%	2.4%	2.6%	3.1%	2.3%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	960	1,180	1,560	2,320	2,220	2,500	3,610	4,220	4,830	5,430	5,170	
- constant 2015 dollars (millions)	1,150	1,370	1,770	2,570	2,450	2,720	3,850	4,410	4,960	5,490	5,170	3,260
ME/AF (constant 2015 dollars)	93,500	111,000	145,000	212,000	204,000	227,000	321,000	368,000	414,000	457,000	431,000	270,000
ME per capita (constant 2015 dollars)	1,180	1,220	1,390	1,810	1,560	1,580	2,080	2,260	2,430	2,590	2,350	1,970
Gross domestic product (GDP)												
- Current dollars (millions)	44,500	60,900	79,700	115,000	97,800	125,000	168,000	187,000	199,000	206,000	165,000	
- constant 2015 dollars (millions)	53,200	70,600	90,100	128,000	108,000	136,000	179,000	195,000	204,000	208,000	165,000	140,000
GDP per capita (constant 2015 dollars)	54,800	63,100	71,000	90,100	68,600	79,100	96,600	100,000	100,000	98,200	75,000	84,300

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

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B8: Iraq

Parameter / Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Mean
Demographic parameters												
Armed forces personnel (AF) (in thousands)	200	290	380	580	610	630	660	680	680	680	370	522
- Armed forces personnel as % of population	0.72%	1.00%	1.40%	2.00%	2.10%	2.10%	2.10%	2.00%	2.00%	1.90%	1.00%	1.70%
- Armed forces personnel as % of labor force	3.10%	4.40%	5.50%	8.20%	8.40%	8.30%	8.50%	8.40%	8.00%	7.70%	4.10%	6.80%
Population (midyear, in millions)	27.5	27.8	27.7	28.3	29.5	30.5	31.6	33.1	34.7	36.0	37.1	31.3
Labor force (LF) (midyear, in millions)	6.5	6.7	6.9	7.1	7.3	7.5	7.8	8.1	8.4	8.8	9.1	7.6
- Labor force as % of population	23.5%	23.9%	24.8%	24.9%	24.6%	24.6%	24.6%	24.5%	24.3%	24.4%	24.6%	24.5%
Armed forces composition (in thousands)												
- Army (land forces)	90	130	160	180	190	190	190	200	200	200	100	163.0
- Navy (may include marines)	1	1	1	2	2	2	3	4	4	4	4	2.4
- Air force (may include air defense)	1	1	1	2	2	3	5	5	5	5	5	3.1
- Other regular forces (incl. joint & support)	10	12	15	17	25	30	40	40	40	40	65	30.4
- Paramilitary and irregular forces	95	150	200	380	390	400	420	430	430	430	200	324.0
Economic parameters in national currency												
Military expenditure (ME)												
- current national currency units (millions)	1,090,000	2,810,000	3,750,000	5,590,000	6,160,000	8,790,000	12,000,000	14,600,000	17,000,000	17,000,000	21,000,000	
- constant 2015 ncu (millions)	1,740,000	3,800,000	4,420,000	5,050,000	6,920,000	8,470,000	9,300,000	11,000,000	12,600,000	13,000,000	21,000,000	8,840,000
ME/AF (constant 2015 ncu)	8,800,000	13,100,000	11,800,000	8,720,000	11,400,000	13,500,000	14,000,000	16,200,000	18,600,000	19,100,000	56,200,000	17,400,000
ME per capita (constant 2015 ncu)	63,100	137,000	160,000	178,000	235,000	277,000	294,000	332,000	364,000	361,000	566,000	270,000
Gross domestic product (GDP)												
- current national currency units (millions)	73,500,000	95,600,000	111,000,000	157,000,000	131,000,000	162,000,000	217,000,000	254,000,000	274,000,000	267,000,000	210,000,000	
- constant 2015 ncu (millions)	117,000,000	129,000,000	131,000,000	142,000,000	147,000,000	156,000,000	168,000,000	191,000,000	204,000,000	204,000,000	210,000,000	164,000,000
GDP per capita (constant 2015 ncu)	4,270,000	4,650,000	4,740,000	5,010,000	4,980,000	5,120,000	5,310,000	5,780,000	5,880,000	5,670,000	5,670,000	5,190,000
(ME/AF) / (GDP/LF)	0.5	0.7	0.6	0.4	0.6	0.7	0.7	0.7	0.8	0.8	2.4	0.8
ME/GDP ("military burden")	1.5%	2.9%	3.4%	3.6%	4.7%	5.4%	5.5%	5.7%	6.2%	6.4%	10.0%	5.0%
Converted at current-year-average MER												
Military expenditure (ME)												
- Current dollars (millions)	740	1,910	2,990	4,690	5,270	7,510	10,300	12,500	14,500	14,500	18,000	
- constant 2015 dollars (millions)	880	2,220	3,380	5,190	5,790	8,160	11,000	13,100	15,000	14,700	18,000	8,850
ME/AF (constant 2015 dollars)	4,480	7,660	9,020	8,960	9,530	13,000	16,500	19,300	22,100	21,700	48,100	16,900
ME per capita (constant 2015 dollars)	30	80	120	180	200	270	350	400	430	410	490	283
Gross domestic product (GDP)												
- Current dollars (millions)	50,000	65,100	88,800	132,000	112,000	139,000	186,000	218,000	235,000	229,000	180,000	
- constant 2015 dollars (millions)	59,700	75,600	100,000	146,000	123,000	151,000	198,000	228,000	241,000	231,000	180,000	158,000
GDP per capita (constant 2015 dollars)	2,170	2,710	3,630	5,150	4,160	4,930	6,250	6,890	6,960	6,430	4,860	5,040

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017
https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

C. Arms Transfers: SIPRI Estimates

SIPRI Arms Transfers

The comparative value of arms transfers provides a rough indication of the comparative rate of military modernization and expansion in Iran and the Arab Gulf states. Like the data on military expenditures, the data available on arms transfers show that the Arab Gulf states have had a massive advantage over Iran in both the total value of arms transfers and access to advanced weapons from the U.S. and Europe. The Arab Gulf states have benefited sharply from the fact that Iran has faced U.S., European, and other arms embargos and sanctions described in the introduction to this analysis while exporters have generally competed to sell their most advanced weapons to the Arab states.

Iran and Regional Arms Production

Iran's lack of access to the world arms market helps explain why Iran is the only Gulf country in the region that has attempted to create a large military industry capable of producing major modern weapons systems. This does partly offset the Arab Gulf advantage although scarcely to the extent reflected in Iranian propaganda.

In spite of its ambitious claims, Iran has had only mixed success. Iran has failed to develop the capacity to produce large numbers of major land weapons aside from towed artillery and multiple rocket launchers. It has produced only very limited numbers of aircraft that have been of uncertain quality and limited numbers of major surface ships.

Iran has, however, produced significant numbers of ballistic missiles of steadily improving range, payload, and accuracy, developed effective UAVs, and is developing cruise missiles, and is producing steadily more advanced anti-ship missiles, smaller combat ships, submersibles, smart mines, and weapons for its land and anti-tank missiles, and MANPADs, It can produce most of its own light weaponry, and has steadily improved its capability to design and manufacture military electronics, avionics, and IS&R sensors. Presumably, it is also taking advantage of computerized laser manufacturing or "printing"

Unfortunately, there are no unclassified data that can support any detailed assessment of Iran's overall investment in its domestic military industries, or the exact extent to which they can compensate for a lack of legal access to outside arms sales. The same is true of Iran's success in making covert arms buys and exploiting the black market in arms and parts. It seems unlikely, however, from the slow rise in the deployment of Iranian-made major weapons that they as yet offer more than limited value in a few areas like artillery, smaller combat ships, and land/air/naval missiles.

The United Nations Office for Disarmament Affairs (UNARM) has set up potentially useful databases on military expenditures, arms transfers (http://www.un-arm.org/MilEx/Home.aspx), and holdings of conventional arms (http://www.un-register.org/HeavyWeapons/Index.aspx), but almost no Gulf and other Middle Eastern Countries countries submit any data, and those that do lack credibility and/or show sharp variations from year to year.

Comparing the Flow of Arms Sales: The SIPRI Methodology

There are, however, three major sources of relatively reliable data data on the flow of arms sales to the Gulf. The first is the SIPRI data base on arms transfers –which is the focus of this section and is the default source recommended by the UN for data on the many countries that do not report. The second is a set of declassified U.S. estimates provided by U.S. experts to the Congressional Research Service, which is discussed in the following section. The third are data reported by the U.SA. State Department and Department of Defense analyzed in the following two sections.

The SIPRI Trend-Indicator Value (TIV)

SIPRI provides two main metrics on arms transfers, and describes its sources and methods in detail at **https://www.sipri.org/databases/armstransfers/sources-and-methods**. It explains that its database attempts to cover both actual weapons transfers and licensed production, and measure the comparative total value of arms transfer using what it calls a "measure the volume of international transfers of major conventional weapons using a common unit, the trend-indicator value (TIV)."

SIPRI makes it clear that many aspects of such estimates are highly uncertain, that they rely on unclassified sources and often on media or commercial estimates. It also makes it clear that its estimates are not made s in either current or constant dollars per se. Its TIV figures are sometimes confused in media reporting with the dollar value of arms sales, but SIPIRI calculates the TIV in ways that show it is a very different metric:

The TIV is based on the known unit production costs of a core set of weapons and is intended to represent the transfer of military resources rather than the financial value of the transfer. Weapons for which a production cost is not known are compared with core weapons based on: size and performance characteristics (weight, speed, range and payload); type of electronics, loading or unloading arrangements, engine, tracks or wheels, armament and materials; and the year in which the weapon was produced. A weapon that has been in service in another armed force is given a value 40 per cent of that of a new weapon. A used weapon that has been significantly refurbished or modified by the supplier before delivery is given a value of 66 per cent of that of a new weapon.

Estimating Transfer by Weapons Category

The SIPRI website not only provides a TIV estimate of the total scale of transfers in a given year, it breaks its estimates of TIVs down into the following major weapons categories:

- **Aircraft**: all fixed-wing aircraft and helicopters, including unmanned aircraft (UAV/UCAV) with a minimum loaded weight of 20 kg. Exceptions are microlight aircraft, powered and unpowered gliders and target drones.
- **Air defense systems**: (a) all land-based surface-to-air missile (SAM) systems, and (b) all anti-aircraft guns with a caliber of more than 40 mm or with multiple barrels with a combined caliber of at least 70 mm. This includes self-propelled systems on armored or unarmored chassis.
- **Anti-submarine warfare weapons**: rocket launchers, multiple rocket launchers and mortars for use against submarines, with a caliber equal to or above 100 mm.
- **Armored vehicles**: all vehicles with integral armor protection, including all types of tank, tank destroyer, armored car, armored personnel carrier, armored support vehicle and infantry fighting vehicle. Vehicles with very light armor protection (such as trucks with an integral but lightly armored cabin) are excluded.
- **Artillery**: naval, fixed, self-propelled and towed guns, howitzers, multiple rocket launchers and mortars, with a caliber equal to or above 100 mm.
- **Engines**: (a) engines for military aircraft, for example, combat-capable aircraft, larger military transport and support aircraft, including large helicopters; (b) engines for combat ships - fast attack craft, corvettes, frigates, destroyers, cruisers, aircraft carriers and submarines; (c) engines for most armored vehicles - generally engines of more than 200 horsepower output*.
- **Missiles**: (a) all powered, guided missiles and torpedoes, and (b) all unpowered but guided bombs and shells. This includes man-portable air defense systems (MANPADS) and portable guided anti-tank missiles. Unguided rockets, free-fall aerial munitions, anti-submarine rockets and target drones are excluded.
- **Sensors**: (a) all land-, aircraft- and ship-based active (radar) and passive (e.g. electro-optical) surveillance systems with a range of at least 25 kilometers, with the exception of navigation and weather radars, (b) all fire-control radars, with the exception of range-only radars, and (c) anti-submarine warfare and anti-ship sonar systems for ships and helicopters*.
- **Satellites**: Reconnaissance satellites.
- **Ships**: (a) all ships with a standard tonnage of 100 tons or more, and (b) all ships armed with artillery of 100-mm caliber or more, torpedoes or guided missiles, and (c) all ships below 100 tons where the maximum speed (in km/h) multiplied with the full tonnage equals 3500 or more. Exceptions are most survey ships, tugs and some transport ships.

- **Other**: (a) all turrets for armored vehicles fitted with a gun of at least 12.7 mm caliber or with guided anti-tank missiles, (b) all turrets for ships fitted with a gun of at least 57-mm caliber, and (c) all turrets for ships fitted with multiple guns with a combined caliber of at least 57 mm, and (d) air refueling systems as used on tanker aircraft.

It is important to note that these categories often include widely different weapons with very different combat roles and sometimes mixes weapons without regard to military service. Categories like "missiles" and "engines" are particularly broad. Major changes are also taking place in military forces and related arms transfers in areas like battle management (BM) systems; command, control, communications, and computer/intelligence (C^4I) systems; intelligence, surveillance, and reconnaissance (IS&R) systems, and in precision guided and smart weapons. It is often difficult to track the volume of such changes.

There are additional problems because some countries tend to focus on major weapons platforms but not buy all of the training, maintenance, and support systems necessary to sustain them in serious combat. Some exporters like the United States attempt to ensure that arms transfers can be sustained in combat by selling both the weapon and necessary support systems as a package, but some purchasing countries countries insist on buying weapons without such support.

It also is often unclear when or if a country buys modernization or upgrade packages from the original seller. Such purchases can be critical cases like ships, combat aircraft, active/improved armor, and the ability to target and use precision guided weapons effectively. The SIPRI efforts to categorize arms import by weapons type is still useful , but it is often necessary to search a given country's purchases by weapons system or combat unit type to fully understand its approach to buying, supporting, and modernizing its forces.

Examining the SIPRI Data

The broad trends in the SIPRI arms transfers data reinforce the trends shown in total military expenditures:

- ***Figure C1 provides a SIPIRI graphic showing the comparative size of recent Gulf arms transfers in map form***. It is obvious that the Arab Gulf states – particularly Saudi Arabia and the UAE have had a massive advantage over Iran in recent years.
- ***Figure C2 shows the trends over the entire period from the end of the Iran-Iraq War to the present***. It does show that Iran made a major effort to rebuild its forces after the major Iraqi victories in 1988 that forced Iran to accept a ceasefire. As the data on Iran shown later in Figure C3 and Figure C4 show, however, Iran was forced to rely heavily on older weapons designs from China and North Korea, and was only able to make limited buys of new export versions of Russian combat aircraft like the Su-24 and MiG-29 to replace its U.S. and British combat aircraft. These buys also left Iran highly dependent on the surviving weapons and

Military equipment it had inherited from the Shah and the lower grade systems if could buy from Asia during the Iran-Iraq War. It was not able to fully repair or modernize most of this equipment because of the U.S. and other arms embargoes.

In contrast, **Figure C2** shows that the Arab Gulf states spent some $16.5 billion on arms during 1988-1999 to Iran's $1.793 billion – well over four times as much. These buys were driven by Iraq's invasion of Kuwait, and the Arab Gulf states had access to some of the most advanced weapons and systems in U.S. and European inventory. They also suffered negligible losses during the war to liberate Kuwait, took the bulk of their deliveries after the fighting was over, and gain serious military experience.

Figures The Arab Gulf states continued their military build-up during 1995-1999 while Iran's economic problems increasingly limited what it could buy. This led to a lull in Iranian-Arab tensions, and an Arab Gulf focus on Iraq then gave the Arab Gulf a 9.6:1 advantage in total arms imports during 1995-1999. Arab concerns dropped as tensions eased during 2000-2004,whle Iran continued to spend what it could with limited success in obtaining either modern weapons from Russia or the systems it needs to repair, sustain, and modernize its Western weapons.

The U.S.-led invasion of Iraq in 2003 initially led Iran and the Arab Gulf states to reduce to reduced their arms imports, but – as ***Figure C3 shows the U.S. invasion and disbanding of Iraq's military forces effectively destroyed Iraq's ability to fight a major conventional war*** through well beyond 2006. The U.S. had not prepared for the aftermath of Saddam Hussein's fall, and in less than two years had begun to deal with both Iranian-backed Iraq Shi'ite irregulars and a growing Iraqi Sunni extremist threat. The end result was a sharp renewal of the Gulf arms race and major new Arab Gulf arms purchases that Iran could not match. During 2005-2009, the Arab Gulf states roughly doubled their arms imports over the previous five year period and where **Figure C2** shows that SIPRI estimates that Iran's imports dropped by some 47% – creating situation where it also estimates that the Arab Gulf imported more than ten times the number of arms as Iran.

Figure C-2 shows that this surge in Arab Gulf arms imports rose sharply from 2010 on and that the ratio of Arab Gulf superiority increase to 51.5:1 in 2010-2014 and 43.3:1 in 2015-2017. This growing lead was partly the result of growing concern of Iran's ability to exploit its influence in neighboring states –particularly in Iraq, Syria, and then Yemen -- and over the rise of ISIS and extremist threats. At the same time, Iran continued to massively mismanage its economy and faced sharply growing sanctions an arms embargos as a result of its missile and nuclear weapons programs.

- ***Figure C4 and Figure C5 show the annual patterns in Iranian arms imports by exporting country and by major weapons category***. Figure C4 shows that Iran could not make major arms purchases from any advanced suppliers, except for the

Purchase of an advanced Russian S400 surface-to-air missile defense systems after it had agreed to the JCPOA. These figures do not, however, include its investment in its nuclear weapons program and do not seem to include much of its investment in long-range missiles – in part because much of this investment involved covert imports, dual-use items, and domestic production. As is discussed later in this analysis, it also does not include the cost of its growing capability to produce weapons for asymmetric warfare – including smart mines, anti-ship missiles, submersibles, fat and missile patrol boats, and precision-guided ballistic and cruise missiles.

- ***Figure C6: Value to Foreign Recipients of Iranian Arms Transfers, 1986-2017*** *and* ***Figure C7: Iran's Key Areas of Strategic Influence.*** The data on the volume of arms transfers also do not reflect Iran's ability to take advantage of the instability of key Arab neighbors like Lebanon, Syria, Iraq, and Yemen, as well as the petty feuding between princes of Saudi Arabia, Bahrain, the UAE and Qatar –and to a lesser extent Yemen. Iran skillfully exploited sectarian and ethnic tensions and other fault lines within the Arab Gulf and the Levant, used the transfer of missiles and light weaponry to arm Shi'ite militias, the Hizbollah, and supporters of Assad to gain significant influence without having to pay for the the massive arms imports of Arab states like Saudi Arabia and the UAE.

- ***Figure C8 to Figure C19 show the relative size of Saudi, UAE, Kuwaiti, Bahraini, Omani, and Qatari arms imports by exporting country and by major weapons category.*** These Figures reveal both strengths and weaknesses in Arab Gulf imports. Even a casual glance at the patterns in arms imports shows a level of diversity in exporters, focus on major weapons categories, and a lack of coordination in the timing of major buys that shows the Gulf Coordination Council was a hollow façade in many ways look before the crisis that led Saudi Arabia, the UAE, and Bahrain to split with Qatar and embargo it. Earlier tensions and past border disputes had made relations uncertain between Oman and Saudi Arabia a long before the GCC's founding in May1981 – largely as a result of the Iran-Iraq War.

  The end result has been a lack of serious focus on standardization and interoperability, alliance-wide focus on key threats and missions like Iran's maritime threat, dependence on the U.S. and other outside states for anything approaching realistic exercises and war planning ,and competition in getting the most advanced weapons and technology rather than creating effective forces. This "glitter factor" has been particularly apparent in shaping national air forces but is more the rule than the exception far to many other weapons buys. It has also sharply limited the integration of intelligence, air and maritime surveillance and defense, and kept Arab Gulf forces largely national components rather than close allies.

- ***Figure C8 to Figure C11 show the patterns in the arms imports by Saudi Arabia and the UAE***, two countries that seem to be moving towards a real bilateral alliance within the façade of the GCC. They are also by far the large arms Arab Gulf arms

Importers, and are acquiring significant real world combat experience from the war they are fighting in Yemen – as well as practice in the kind of complex air operations they might have to use in fighting Iran.

They continue, however, to buy from a wide range of different exporters on a "glitter factor" basis, and Saudi Arabia has been particularly slow to modernize its navy and structure it to meet the asymmetric threats actually posed by Iran. The two countries have also been slow in fully integrating their air defenses and I moving towards more advanced forms of theater missile defense.

- ***Figure C-12 and Figure C-13 show the patterns in the arms purchases by Kuwait***. Kuwait's holdings of U.S.-supplied weapons are larger than its 15,300 active personnel can properly support, and its reserves would require major training to be effective, but Kuwait can provide the equivalent of prepositioned equipment and support for U.S. forces. As Figure C-14 shows, potential support from the U.S. adds a key element of deterrence, given the proximity of Iran, the uncertain stability and alignment of Iraq, and the lack of real-world power projection capability on the part of its Arab Gulf allies.

- ***Figure C-15 and Figure C-16 show the patterns in the arms purchases by Bahrain***. Bahrain is another small, exposed Arab Gulf state that is particularly vulnerable to Iranian pressure because of the tensions between its Shi'ite majority and Sunni ruling elite. It could be more dependent on U.S. military support in a major crisis than on it Gulf neighbors – although it has close security ties to Saudi Arabia and the UAE – and is careful to preserve its ties to the U.S. Bahrain has supported the U.S. in air operations against ISIS in Syria, and Saudi-UAE forces in Yemen. It hosts the U.S. 5th Fleet headquarters and serves as a base for U.S. ship visits and air deployments. It only has 8,500 personnel in its armed forces, but **Figure C-12** shows its forces are largely U.S. equipped and this would help support U.S. forces in an emergency rapid deployment..

- ***Figure C-17 and Figure C-18 show the patterns in the arms purchases by Oman***. Oman is a relatively small state, but its strategic location across from Iran at the Strait of Hormuz, the entrance to the Gulf, and its long coast on the Indian Ocean make it key player in Gulf security. It has long taken a relatively independent stand with the Arab Gulf states – maintaining better relations with Iran than any other Arab Gulf state except Qatar, and distancing itself from Saudi and UAE influence. It has maintained close security ties to the United Kingdom, but has shifted many of its arms purchases to the United States and increasingly focused on improving its airpower and air defenses with F-16 and Typhoon fighters, as well as modernizing its navy with the kind of smaller missile frigates, corvettes, and patrol ships suitable for engaging Iran's asymmetric threat. It provides contingency air and naval bases for U.S. and British power projection forces. It lacks heavy surface-to-air missiles, and has only limited integration of its air and sea IS&R and C4 systems with the UAE and Saudi Arabia. Its ground forces were once some of the most combat experience in the Gulf, but it only played a limited role in liberating Kuwait has stood aside from the

fighting in Yemen.

- ***Figure C-19 and Figure C-20 show the patterns in the arms purchases by Qatar***. Qatar has long relied on granting the United States a major air base at Al Udeid as a means of ensuring U.S. aid in dealing with the threat from Iran Iran and pressure from Saudi Arabia and the UAE. This led Qatar to be more restrained in making arms purchases than most of its Arab Gulf neighbors until 2015. Since then Qatar's growing tensions with its closest two Arab neighbors – and pressure to join its Arab neighbors in their arms race with Iran – has led to major new buys. These purchases accelerated after June 2017, when Saudi Arabia and the UAE – joined by Bahrain and Egypt -- imposed a "land, sea, and air blockade" in June 2017.

  These developments not only virtually paralyzed the already limited progress towards integration and standardization within the GCC and Arab Gulf – they pushed Qatar towards increasing economic ties to Turkey and Iran. They also led Qatar to step up a policy of using major arms buys to help ensure outside support from the United States (F-15s), Britain (Typhoons) , and France (Rafale). Qatar has a nominal strength of 17,000 personnel in its armed forces, including its Coast Guard and Emiri Guard . However, Qatar's actual active strength may be significantly lower. Qatar has some effective units that performed well in1991, and do well in exercises. It is unclear, however, that it can properly use its current and planned arms buys, although they would still have value in terms of supporting outside reinforcements from the U.S. and Europe.

- ***Figure C-21 and Figure C-22 show the patterns in Iraq's arms purchases by both supplier and investment in given categories of weapons.*** They show that Iraq made virtually no arms imports between its invasion of Kuwait, the war that liberated Kuwait, and the long UN embargo on Iraqi arms imports that followed. the first Gulf War in 1990-1991 still, however, left Iraq strong enough to be a major rival to Iran, and it was only the shattering defeat of Iran in the U.S. led invasion of Iraq in2003 that effectively destroyed Iraq's forces and removed it as a major check on Iran. **Figure C-3** has already shown the impact of this U.S.-led invasion of Iraq in 2003 on the Gulf military balance, and that it effectively destroyed Iraq as a military power equal to – or superiority to Iran.

  The official disbanding of Iraq's military forces following the U.S. invasion meant that no official effort was made to rebuild Iraq's military forces until a rising Sunni extremist insurgency created a major civil war in Iraq that lasted through 2009-2010. This did lead to a new wave of arms transfer to Iran, and the partial rebuilding of Iraqi military forces shown in **Figure C23**. This rebuilding often meant rushing in imports from a wide range of sources—much of which went to restoring the operational capability of equipment held before 2003. Much of the core fighting against extremists was also done local Sunni tribal forces that had turned against the extremists, and by U.S. and allied outside forces. Many new Iraqi units were created far too quickly and without adequate trainers and follow up, and corruption was endemic.

U.S. and other outside combat forces left Iraq on December 18, 2011, leaving the job of rebuilding Iraqi forces at best half done, and with an awkward mix of new Western and semi-reconditioned FSU supplied weapons and equipment.

Iraq's military development was then crippled by power struggles following an Iraqi election in 2010 where Prime Minister Maliki concentrated on creating heavily politicized forces loyal to him, and pursued tactics that divided the country along sectarian and ethnic lines. This left Iraq's forces weak and divided when ISIS invaded at the end of 2013 and in early 2014.

The ISIS invasion and effort to turn Iraq and Syria into some form of "caliphate" led to a second U.S. military intervention and effort to recreate Iraqi forces. Power struggles following the Iraq election in 2010 than divided the country along sectarian and ethnic lines, as well As **Figures C-21** and **Figure C-22** show, this new fighting led to much larger arms imports and a major U.S. effort to equip Iraqi forces to fight ISIS in what became a counterinsurgency campaign where the U.S. and other outside powers provided airpower, while Iraqi ground forces -- along with Kurdish ground forces and largely Shi'ite popular militias -- fought ISIS on the ground.

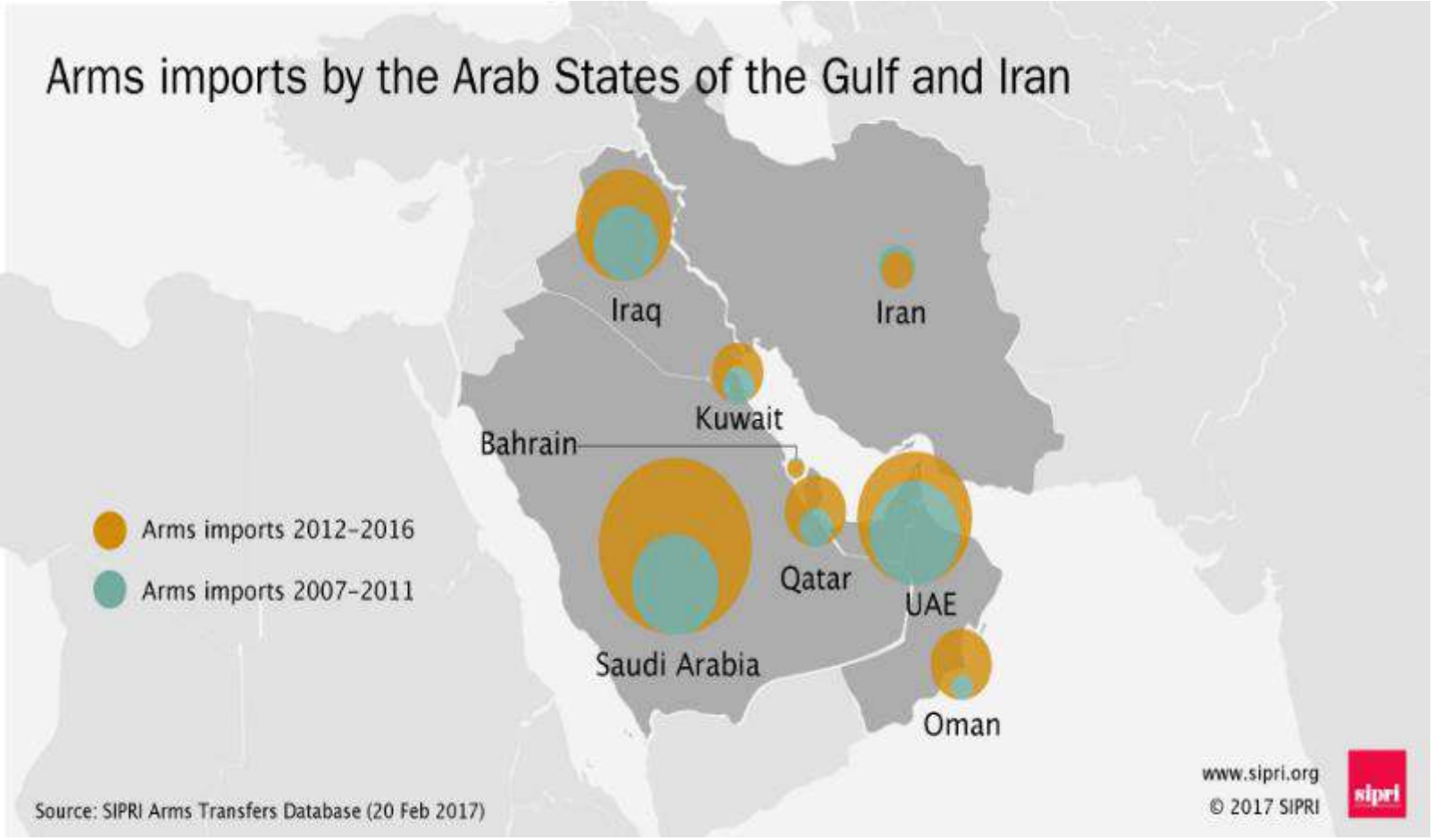
This did create some highly effective Iraqi ground units, but the training of Iraqi forces emphasized elite counterinsurgency forces, and Iraq now has an order of battle with very mixed capability and experience largely in counterinsurgency and counterterrorism. The current Iraqi force numbers shown in **Figure C24** make a beginning, and Iraq is making purchases that will improve their capability to deter and defend against an Iranian invasion or challenge from Syria. At its current rate of development, it would take at least half a decade to build up the land and air forces needed to defend effectively against a major Iranian attack without outside aid.

Iraq has not, however, defined any clear path for integrating Kurdish forces into its armed forces, still has a large number of militias – many that are largely Shi'ite and with ties to Iran, and has had yet another deeply divisive election. It still faces deep sectarian and ethnic divisions, and the other Arab Gulf states have been slow to reach out to Iraq and provide meaningful support. Iraq remains vulnerable to future sectarian struggles and Iranian influence.

As **Figure C25** to **Figure C27** show, this is a critical consideration in any assessment of the Gulf military balance. If Iraq divided in ways that gave Iran (and Syria?) major influence over Iraq, it would radically alter the balance in the Gulf and the Middle East in ways which would sharply offset the present military advantages of the U.S. and other Arab Gulf states, make Kuwait far more vulnerable, give Iran potential leverage over Iraqi petroleum exports in challenging sanctions, and divided the entire region far more sharply along sectarian lines.

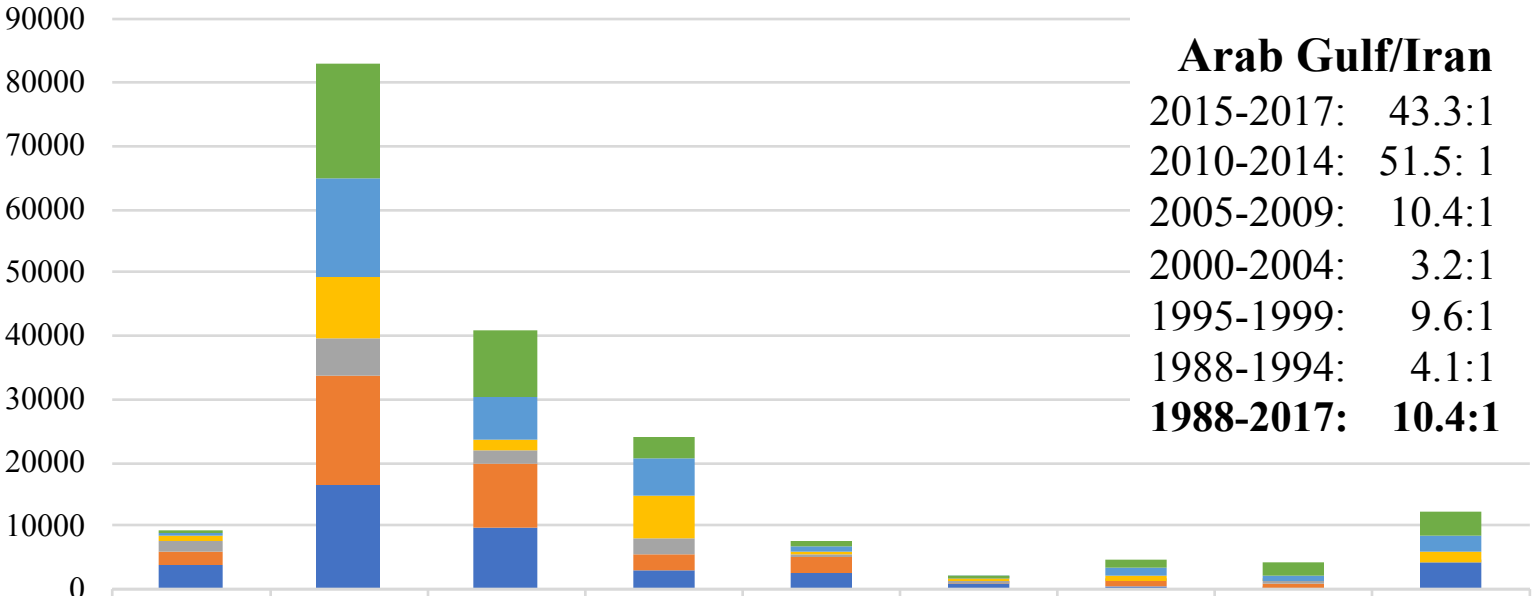
C1: SIPRI Estimate of Imports by the Arab States versus Imports by Iran

(Comparative value in Trend Indicator Values or TIVs)



Source: Source: Dr. Kate Blanchfield, Pieter D. Wezeman, and Siemon T. Wezeman , "The state of major arms transfers in 8 graphics," SIPRI, February 22, 2017, https://www.sipri.org/commentary/blog/2017/state-major-arms-transfers-8-graphics.

C2: SIPRI Estimates of Arms Imports: 1988-2017
(in SIPRI TIVs)



	Iran	GCC	Saudi Arabia	UAE	Kuwait	Bahrain	Oman	Qatar	Iraq
2015-2017	415	17970	10449	3383	669	65	1320	2084	3942
2010-2014	306	15755	6594	5892	994	203	1397	675	2470
2005-2009	935	9701	1817	6427	310	175	659	313	1549
2000-2004	1780	5690	2050	2551	382	392	268	47	71
1995-1999	1793	17246	9986	2782	2566	332	754	826	0
1988-1994	4017	16500	9767	2834	2604	689	397	209	4159
1988-2017	**9,232**	**96,144**	**41,760**	**23,865**	**7,526**	**1,856**	**4,793**	**4,153**	**12,191**

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values, as of 30.7.18

C3: US Destruction of Iraq's Major Forces – 2003

Category	Before Invasion in 2003			Mid 2006	
	Iraq	Iran	Force Ratio	Iraq	Iran
Active Personnel	424,000	513,000	1:1.21	116,100	350,000
Reserve Personnel	650,000	350,000	1:0.53	-	350,000
Main Battle Tanks	2,200	1,565	1:0.71	77+	1,613
AIFVs	1,300	815	1:0.63	38+	725
APCs	2,400	590	1:0.25	68	640
Towed Artillery	1,900	2,085	1:1.10	84	2,010
Self-Propelled Artillery	150	310	1:2.07	12	876+
MRLs	200	889	1:4.45	83	876+
Combat Aircraft	316	283	1:0.90	0	266
Attack Helicopters	100	85	1:0.85	0	50
Major SAM launchers	225	205	1:0.91	0	150

Adapted from the IISS Military Balance 2003 and 2007

C4: SIPRI Estimate of Iranian Arms Imports by Exporter: 1988-2017
(In Trend Indicator Values or TIVs)

Generated: 30 July 2018

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Belarus													8	15	16									15							53
Brazil		3	5	33																											41
Canada		1	2	12																											15
China	184	60	87	96	103	304	274	58	320	54	70	64	69	80	81	84	80	43	54	47	47	47	62	52	31	9	9	9			2480
East Germany (GDR)		8																													8
France									1																						1
Netherlands	15	15	15	15		8	8	15																							90
North Korea	189	14	4	92	109	115	6	6	4	4	2				116	114	27														801
Pakistan		1	2	3											0																6
Poland							83	171																							254
Russia					220	559	83	47	289	119	256	258	341	298	92	85	15	15	368	283	15	15	41	33	15	22	4	4	398	4	3875
Soviet Union	90	90	339	772																											1291
Ukraine						2					52			132	130																316
Total	478	192	454	1022	432	987	452	296	615	178	381	323	418	524	435	282	121	57	423	331	62	62	103	100	46	31	13	13	398	4	9232

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C5: SIPRI Estimate of Iranian Arms Imports by Weapons Type: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft		12	296	683		275	13	10	56		68		74	238	198	68			69												2059
Air defence systems		36	54	82				7	7			15	15	15	15	15	15		188	175									220		857
Armoured vehicles	210	90				332	153	189	50	113	243	243	251	186	19	3	3	3	3	3	3	3	3	3							2106
Artillery	100	7	8	21	82	14	10	6	4	4	9	7	7	7	7																292
Engines		1	2	12		4	10	16	4	4	4	4	4																		67
Missiles	153	32	79	203	130	134	47	53	60	56	56	40	47	52	52	55	56	49	158	147	53	53	68	58	40	13	13	13	154	4	2131
Other													6	6	6	6	6	6	6	6	6	6	6	6	6						72
Sensors				7								14	14	14									26	33		18			24		149
Ships	15	15	15	15	220	228	220	15	433					8	139	136	42														1499
Total	478	192	454	1022	432	987	452	296	615	178	381	323	418	524	435	282	121	57	423	331	62	62	103	100	46	31	13	13	398	4	9232

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

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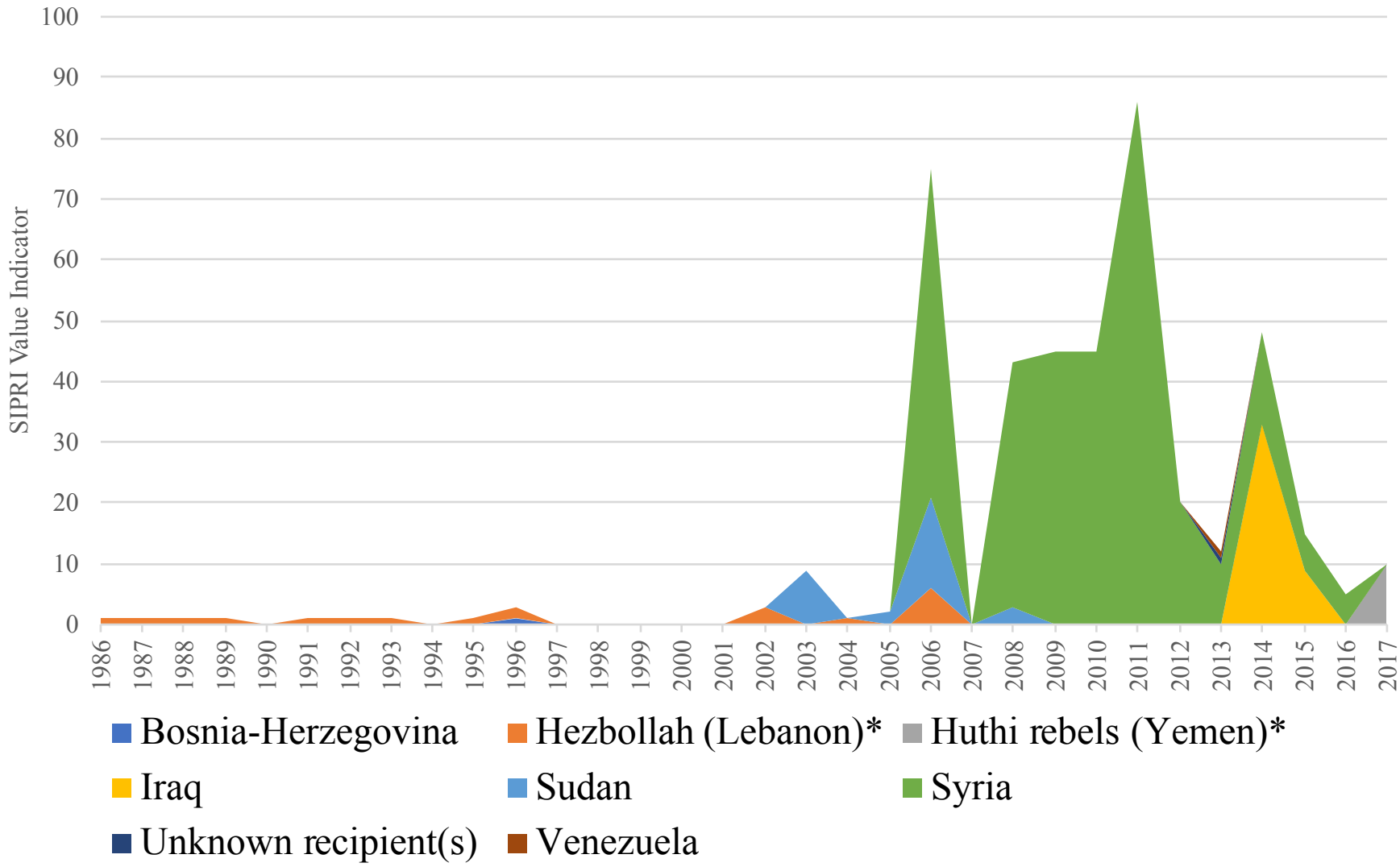
C6: Value to Foreign Recipients of Iranian Arms Transfers, 1986-2017



Source: SIPRI Arms Transfers Database, generated April 2018
http://armstrade.sipri.org/armstrade/page/values.php

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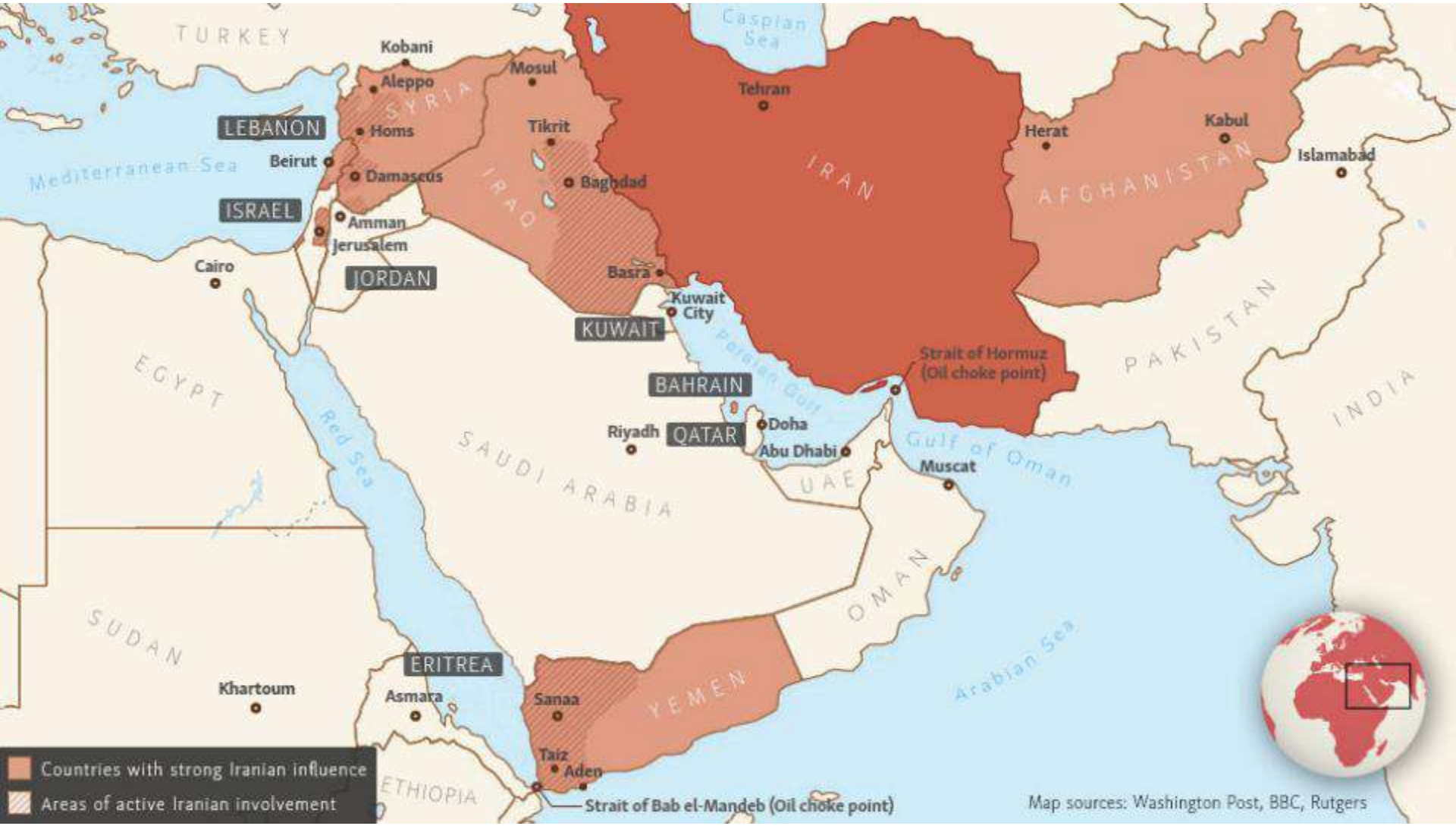
C7: Iran's Key Areas of Strategic Influence



Source: RadioFreeEurope
https://www.rferl.org/a/iran-influence-yemen-iraq/26924135.html

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C8: SIPRI Estimate of Saudi Arabian Arms Imports by Major Exporter : 1988-2017

(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Austria			5																				2					4	4		14
Belgium													1	14	14	15	47		7					7	21	21	10				157
Brazil	28	4	29	25	10																										94
Bulgaria																												8	1		9
Canada	4				68	68	57	57	59	28	25	23	20	6	5	5	17		8	12	10	3		33	40	34	45	111	15	2	758
China	225																				33	33						8		20	319
Finland																									4	4	7	7			22
France	274	184	297	213	97	49				5	31	36	25	7	374	29	761	1	4	26	25	31	89	84	25	54	184	174	91	27	3195
Georgia																													7	7	14
Germany (FRG)		59		13							1	1	1	1	1	1	1	1			3	3	12	73	79	80	63	2	14	105	512
Italy															83		6			15	15	15			1			89	89	48	360
Netherlands																								13	25	25	25	25			113
Pakistan																		4													4
Serbia																												4	11	2	17
Slovakia																										1	0	3	3		6
South Africa																			6	7	1			4			1	5	4	6	33
Spain																								98	196		98	208	24	22	646
Sweden																							3	3			160		1		167
Switzerland	33	35	40	42	53	57	40	38	45	6												10	40	40			83	142	44		747
Turkey																	15	8	8	20	26	26	29	33	33	44	39	52	39	13	384
United Kingdom	72	929	653	352	10	185			220	1029	630	8	35								29	458	550	438	216	746	615	751	843	436	9205
United States	152	172	1049	397	888	2017	884	888	1407	1724	2212	1512	3	33	89	117	324	153	172	150	248	244	358	397	394	607	1411	1759	1796	3425	24983
Total	788	1382	2073	1041	1125	2377	981	983	1731	2792	2900	1580	85	61	567	167	1170	167	205	230	391	824	1083	1222	1033	1615	2741	3352	2986	4111	41760

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C9: SIPRI Estimate of Saudi Arabian Arms Imports by Weapons Type: 1988-2017

(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft	83	887	1344	491	529	226		283	991	2110	2382	1156	15	7	120	40	220	11	7	110	50	504	695	753	255	676	1205	1675	1328	2458	20609
Air defence systems	124	124	124	36		188	188	188	235	188																3	236	343	330	330	2636
Armoured vehicles	4	10	214	158	325	1404	426	111	61	32	27	23	20	28	5	44	71	48	65	40	66	47	29	70	298	386	699	585	710	227	6233
Artillery	3	4	47	52	39								22		22		2				33	34	52	64	4	33	34	18	14	2	479
Engines	4			0	12	19	9	10	16	6	5	5	4	2	2	2	4	2	3	5	178	178	176	25	35	13	35	69	20	39	874
Missiles	410	149	174	137	100	406	251	289	335	308	385	344	11	9	54	66	126	106	110	34	33	25	72	193	297	383	339	396	448	820	6810
Naval weapons				1		1				1					3		6														11
Other					49	49	56	56	56	39	44	44	1	14	14	15	47		20	26	15	5		50	95	73	56	46			873
Sensors	160	150	170	120	71	40	51	46	37	63	56	8	13							15	15	30	59	68	49	47	138	221	125	164	1915
Ships		59		45		45				45					347		695												12	72	1320
Total	788	1382	2073	1041	1125	2377	981	983	1731	2792	2900	1580	85	61	567	167	1170	167	205	230	391	824	1083	1222	1033	1615	2741	3352	2986	4111	41760

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C10: SIPRI Estimate of UAE Arms Imports by Exporter: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Austria																			2	2	3	3	2								12
Bulgaria																18															18
Canada																							2	13	11	5	13	12	7	5	69
China						7	7																			6	9			20	49
Denmark																								1		2		1	2		6
Finland																					2		3			1	2	1	12		20
France		544	337	103		25	45	109	232	262	262	272	161	155	196	604	823	898	918	357	58	23	63	104	5	272		167	336	45	7375
Germany (FRG)			164	76			1	6	15	19	17	16	9	9	9	4	5	4	46	4	4	6	32	8		27	71	11	21	5	586
Indonesia						16	16	25																							57
Italy	11	15	8	14	10	5	5	15											6	36				3	3	316	20	77	11		554
Libya																			18			18	18								54
Netherlands			10	10						227	234	25	2	2																167	676
New Zealand																												1			1
North Korea		44																													44
Romania						16	24												8	32											79
Russia					116	138	196	202	36	99	133	68	44								1	113	288	90	90	90					1703
Singapore		30																				1	1	1	1	1	1	2	1		37
South Africa				9	54	54			1							1			13	1		2	3	2	2	6	11	20	20	23	222
Spain																										294					294
Sweden			20	7					8	8	8								9	9	1	1	40	47		72	57	65	17	5	372
Switzerland		2																						78	44						124
Turkey												20	16					9	7	7	7		3		10	20	20	80	80	80	359
Ukraine																22															22
United Kingdom	9	12	15	16	20	226	59	36	34	68	83	22		2			2									66					669
United States	22	6	6			92	213	26	154	6	21	15	15	19	18	36	381	1260	996	472	677	394	153	863	923	1063	542	814	779	499	10462
Unknown supplier(s)																	1														1
Total	42	652	559	235	201	579	566	419	480	688	758	437	247	186	222	685	1211	2171	2023	919	753	561	607	1210	1088	2241	746	1249	1286	848	23865

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C11: SIPRI Estimate of UAE Arms Imports by Weapons Type: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft	9	479	286	71	10	281	261	76	141	8		10	19	30	73	479	922	1739	1453	535	637	337	196	816	581	448	116	421	75	69	10578
Air defence systems			10	10						10	10											88	264	66	176	286	165	250	250		1585
Armoured vehicles		2			116	138	191	277	268	361	381	320	193	134	130	56	13	10	49	5	8	29	21	15	2	194	7	8	80	192	3198
Artillery	11	6		9	54	61	7	10		18	23	30						7	7	7	7	1	3	23	10	2	7	2	1	13	319
Engines				0	0		1	6	15	17	17	19	11	9	9	4	5	4	9		0	10	9	21	11	65	3	13	26	8	294
Missiles		65	59	46	20	99	106	34	48	68	119	34	21	11	10	146	272	390	430	342	65	43	83	154	300	586	340	335	554	349	5128
Naval weapons			8	3																					3	6		3	6	5	33
Other																										30					30
Sensors	22	70	32	19				16	8	9	11	2	2	2				20	21	21	36	54	30	11	5	66		56	85	45	643
Ships		30	164	76						198	198	22							53	9				104		559	107	161	209	167	2056
Total	42	652	559	235	201	579	566	419	480	688	758	437	247	186	222	685	1211	2171	2023	919	753	561	607	1210	1088	2241	746	1249	1286	848	23865

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C12: SIPRI Estimate of Kuwaiti Arms Imports by Exporter: 1988-2017

(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Australia						30				0	4																				34
Austria										0	11	10										0				13	11				45
Belgium											6	5																			11
China													30	15	20	21															86
Egypt	2	11	10																												23
France	0	2	6	16						2	13	176	170					7				2							1	25	420
Germany (FRG)	0	0	1				3					8	12	2	3	3	2													4	38
Italy	4	11	11	11					11	11											5	5	9	9	9	9					103
Norway																						1						1			2
Russia							6	134	73	96													36	65				48			459
Singapore							9																								9
Soviet Union		57	188																												245
Switzerland		50	50						10					50															20	5	185
Turkey																													11		11
UAE																														22	22
United Kingdom		0						102	93	58		8	32										3	3						1	299
United States			5	41	896	664	18	396	1003	315	19	5				21		5	5	279		1	37	36	22	52	681	311	165	55	5032
Yugoslavia			55	447																											502
Total	6	132	325	516	896	694	35	632	1189	482	51	212	245	67	23	45	2	12	5	279	5	9	85	113	31	73	692	359	197	113	7526

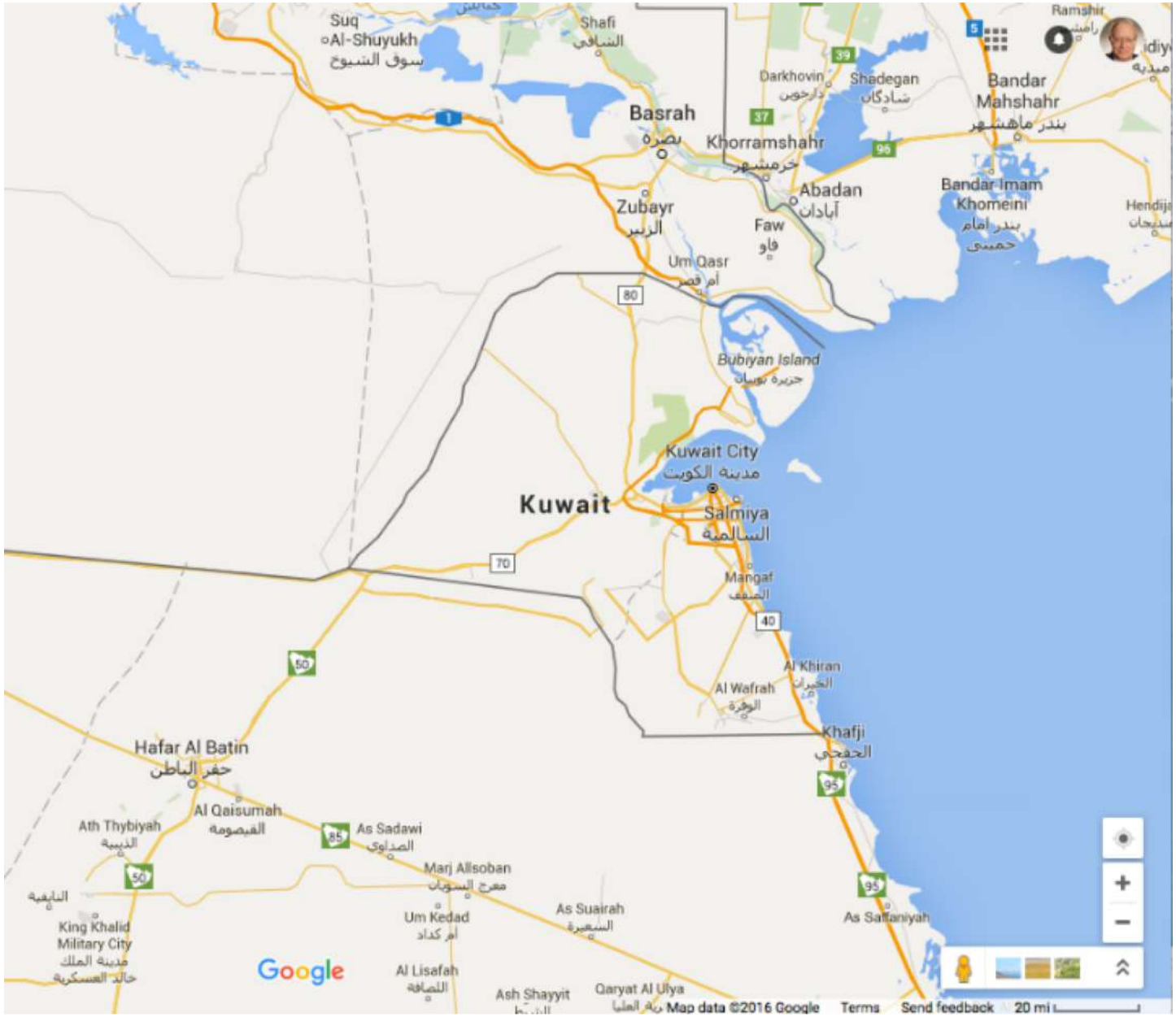
Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C13: SIPRI Estimate of Kuwaiti Arms Imports by Weapons Type: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft				38	863	600		26										7		248							415				2196
Air defence systems		50	50					141	151					50													110	110	185	55	902
Armoured vehicles	2	55	240	447			14	255	821	390	14	10	8	4	5	6	2					2	38	71		13	11	48	12	30	2498
Artillery				13				11	22				22	11	15	15															108
Engines	0	0	1					10				8	12	2	3	3						0									39
Missiles	4	24	27	18	34	53	8	144	130	52		6	24			21				16	5	6	44	30	17	29	141	201	0		1033
Other	0	2	2					36	66	40	10	10										1	3	3		9	15	1		1	198
Sensors			5			11	5	10			28	8	8					5	5	15									5	105
Ships						30	9					170	170											9	14	23				22	447
Total	6	132	325	516	896	694	35	632	1189	482	51	212	245	67	23	45	2	12	5	279	5	9	85	113	31	73	692	359	197	113	7526

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C14: The Kuwaiti "Hinge" to Arab Gulf Forces



C15: SIPRI Estimate of Bahraini Arms Imports by Exporter: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Belgium																					16							2	3		21
Canada																													4		4
China																													4		4
France	8	7						18															17	1	1	1	1				53
Germany (FRG)	76	44					2																								122
Malta																	10														10
Netherlands							6		9	0	5																				20
Oman																		1													1
Sweden	7	7																													13
Turkey																		3			2		4		25	11			6		50
UAE																							15								15
United Kingdom	1													25		0			60											28	114
United States	46	14	362	68	42	1		53	45	198	4		299	3	54	1		63	3	26	2		68			60		15		4	1429
Total	137	71	362	68	42	1	8	71	54	198	9		299	28	54	1	10	66	63	26	20		103	1	26	72	1	17	16	32	1856

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C16: SIPRI Estimate of Bahraini Arms Imports by Weapons Type : 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft			342	7			2	36		30			285	25		0	10	27	63	9			58							28	923
Air defence systems								15		15																					30
Armoured vehicles	40			47	25	1	0	17	43	0	5		14	2				14			18		14	1	26	12	1	2	9		290
Artillery					11		6			22								25											4		67
Missiles	14	7	20	6	6			3	2	11	4			1	54	1				2	2		17			60		15	4	4	232
Sensors	7	7							9											15											37
Ships	76	58		9						120													15								278
Total	137	71	362	68	42	1	8	71	54	198	9		299	28	54	1	10	66	63	26	20		103	1	26	72	1	17	16	32	1856

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

Bahrain's Island Vulnerability

Ethnic groups:
Bahraini 46%, Asian 45.5%, other Arab 45.7%, African 1.6%, European 1%, other 1.2% (2010 census)

Languages:
Arabic (official), English, Farsi, Urdu

Religions:
Muslim (Shia and Sunni) 70.3%, Christian 14.5%, Hindu 9.8%, Buddhist 2.5%, other 2.8% (2010 census)
Shi'ite-Sunni sectarian tension has been a continuing challenge.

Population:
1,410,942 July 2017 est.
country comparison to the world: 155 *note:* population is 48% immigrant.
urban population: 89.3% of total population (2018); rate of urbanization: 4.38% annual rate of change (2015-20 est.)

Economy
Low oil prices have generated a budget deficit of at least a $3.5 billion deficit in 2017, nearly 10% of GDP. Bahrain has few options for covering this deficit, with low foreign assets and fewer oil resources compared to its GCC neighbors. In 2016 the three major US credit agencies downgraded Bahrain's sovereign debt rating to "junk" status, citing persistently low oil prices and the government's high debt levels. Nevertheless, Bahrain in 2017 was able to raise about $4 billion by issuing international debt.

C17: SIPRI Estimate of Omani Arms Imports by Exporter: 1988-2017
(Current millions $USD)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Australia																													40		40
Canada													6	1							4					4	4	4	4		27
China															3	15															18
Denmark																												5	5		10
Egypt	1		2																												3
France	5	25	10					38	54	40	1			5	11	14	3		3			91	14	14	82	82	68				558
Germany (FRG)	0		0																							16	8			3	27
Italy		5							3	3				9									14	7		6	3	6	6		59
Netherlands									11	11																35	17	19	19		110
Norway																													100	100	200
Pakistan							1								1																2
Qatar						40																									40
Singapore																												46	46		92
South Africa							9		27																						36
Spain																										24	24	43	69	26	186
Sweden		3						5	3																						10
Switzerland		0						8	25				14	3																	50
Turkey																														28	28
UAE																			15												15
United Kingdom	13	87	11			10	119	218	142	105	9		98	14	19	3	25	25								289	145			540	1871
United States			36			6	16	10	27	5	12			1	6	4	13	148	284	16	71	2	2		38	35	468		127	87	1413
Total	19	119	59			55	145	278	291	163	22		118	33	40	36	41	173	302	16	75	93	30	21	120	490	736	122	415	783	4793

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C18: SIPRI Estimate of Omani Arms Imports by Weapons Type: 1988-2017
(Current millions $USD)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft		0				12	119	44			9		14	3	1		25	149	189		66	90	14	14	80	101	459	43	43	540	2014
Air defence systems						34		8																	20				111	100	272
Armoured vehicles	1		38				1	62	66	12	1		85	2	21	22	3						14	7						28	362
Artillery							9		27						3							1									39
Engines	0		0					1	10	9			6	2	4	1	13	13								20	12	4	4	3	100
Missiles		31	11			4	4	116	24	25	12			4	12	13		2	79	4		2	2		20	40	67		110	87	667
Naval weapons		5							3	3																6	3	6	6		30
Sensors	18	20	10			6	12	11	42	14			13	22				9	19	12	9					35	51	24	55	26	406
Ships		63						38	120	101									15							289	145	46	86		902
Total	19	119	59			55	145	278	291	163	22		118	33	40	36	41	173	302	16	75	93	30	21	120	490	736	122	415	783	4793

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

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C19: SIPRI Estimate of Qatari Arms Imports by Exporter: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Belgium											17	8																			25
Brazil					25																										25
Canada																											4	6	5		14
China																														29	29
France	87	10	5	5	40	11	10	11	40	188	276	60	14	11	11	11				27			0		27	62		5			909
Germany (FRG)									12	4																		73	257	114	460
Italy									8	3												6	30	48	12					20	126
Netherlands									44	15																					59
Pakistan																														2	2
Russia																														4	4
South Africa				12																											12
Switzerland																											29	49	39		118
Turkey																										11	22			5	39
United Kingdom									97	33	7	3																			139
United States										0	1	0										280		150	280			385	595	496	2187
Unknown supplier(s)	5																														5
Total	91	10	5	17	65	11	10	11	201	242	300	72	14	11	11	11				27		286	30	198	319	73	55	518	896	670	4153

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, accessed 26.7.18

C20: SIPRI Estimate of Qatari Arms Imports by Weapons Type: 1988-2017
(In Trend Indicator Values or TIVs)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft					16					93	248	31										286	30	198	292		29	329	319	2	1873
Air defence systems	50								30	10																		55	110	165	420
Armoured vehicles	5				14	1	0	1		1	14	3													3	6		50	172	119	389
Artillery	5			12	17																							23	86	2	144
Engines									12	4	1	0															4	6	5	2	34
Missiles	22	5			10	10	10	10	10	85	20	29	14	11	11	11							0		24	57		55	205	360	958
Naval weapons									8	3																					10
Other											17	8																			25
Sensors	10	5	5	5	8				44	15										27										20	137
Ships									97	32																11	22				163
Total	91	10	5	17	65	11	10	11	201	242	300	72	14	11	11	11				27		286	30	198	319	73	55	518	896	670	4153

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C21: SIPRI Estimate of Iraqi Arms Imports: 1988-2017

(Current millions $USD)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Australia																	0														0
Belarus																												14	28		41
Brazil	76																														76
Bulgaria																											4	49	60		112
Canada	23	5	2															0	0	1	0	2	7								41
China	192	23															20											17			252
Czech Republic																											4	86	78	26	195
Egypt	59	48																													107
Estonia																												0			0
France	233	78	192																				2								505
Germany (FRG)	30	23	17																					36	18		6	13	3	10	156
Greece																		13	23												36
Hungary																		82		9											91
Iran																											33	9			42
Italy																						70								170	240
Jordan																	42	20		13											74
Pakistan																		13	4												17
Poland																		3	63	23											90
Russia																			68	27	95		68	81		51	301	420	300		1410
Serbia																							1	4							5
Slovenia																													0		0
South Africa	25																		13	5			0	4	5			2			54
South Korea																		2											427		430
Soviet Union	1103	1293	555																												2951
Spain		3																										1	32		35
Switzerland	11	2	4																												17
Turkey																		3	66												69
UAE																	3	2													5
Ukraine																			20	44	2	15	13	52	113	47					307
United Kingdom	7																	5		5											17
United States	125																6	43	55	150	281	311	343	397	340	255	285	791	898	506	4787
Unknown supplier(s)																											1		1		2
Yugoslavia	2	18	9																												29
Total	1888	1492	779														71	186	312	275	378	398	434	574	476	353	633	1403	1827	712	12191

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C22: SIPRI Estimate of Iraqi Arms Imports by Weapons Type: 1988-2017

(Current millions $USD)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Aircraft	435	817	637														2	35	68	96	159	10	89	146	191	168	301	769	1061	243	5226
Air defence systems																										2	69	132	66		269
Armoured vehicles	561	390	65														49	151	243	179	219	296	325	342	177	78	34	302	365	125	3902
Artillery	324	129	9																			8	8	47	15	14	10	10	9	8	590
Engines	23	5	2																2			2	7		3				106	10	159
Missiles	506	137	67																			1	0	12	32	34	184	153	213	156	1494
Sensors	39	14																				11				41	35	36	8		184
Ships																	20					70	6	28	59	17				170	368
Total	1888	1492	779														71	186	312	275	378	398	434	574	476	353	633	1403	1827	712	12191

Source: SIPRI Arms Transfer Database, http://armstrade.sipri.org/armstrade/html/export_values.php, as of 30.7.18

C23: Iraq's Limited Military Recovery as of 2013

Category	2003			2013		
	Iraq	Iran	Force Ratio	Iraq	Iran	Force Ratio
Active Manpower	424,000	513,000	4:5	271,400	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	336+	1663	1:5
AIFVs	1,300	815	8:5	193	725	1:3.8
APCs	2,400	590	4:1	1,455	640	2.3:1
Towed Artillery	1,900	2,085	9:10	138+	2,030	1:14.7
Self-Propelled Artillery	150	310	1:2	48+	292	1:6
Multiple Rocket Launchers	200	889	1:5	?	1,476	NA
Combat Aircraft	316	283	11:10	3	336	1:112
Attack Helicopters	100	85	6:5	0	50	NA
Major SAM Launchers	225	205	11:10	0	234	NA

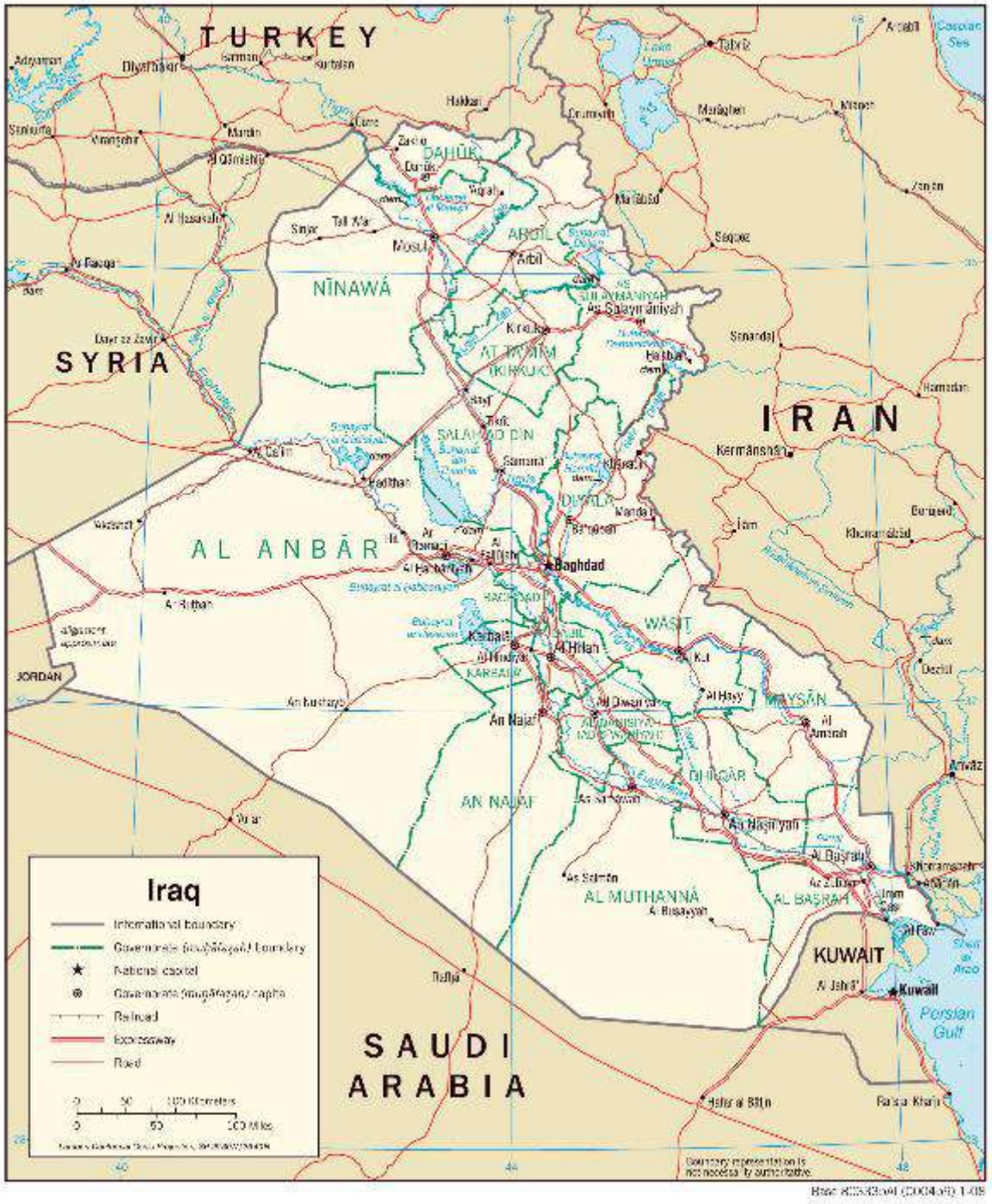
Source: Adapted from IISS, **The Military Balance 2013**, various editions and Jane's Sentinel series.

C24: Recovery Mark II -- Iraq's Forces in 2003 vs. 2018

Category	2003			2018		
	Iraq	Iran	Force Ratio	Iraq	Iran	Force Ratio
Active Personnel	424,000	513,000	1:1.21	64,000	523,000	1:8.17
Reserve Personnel	650,000	350,000	1:0.53	-	350,000	NA
Main Battle Tanks	2,200	1,565	1:0.71	318	1,513	1:4.75
AIFVs	1,300	815	1:0.63	675	725	1:0.92
APCs	2,400	590	1:0.25	910	640	1:0.70
Towed Artillery	1,900	2,085	1: 1.10	60	2,030	1:33.8
Self-Propelled Artillery	150	310	1:2.07	72	292	1:4.05
Multiple Rocket Launchers	200	889	1:4.45	3	1,476	1:492
Combat Aircraft	316	283	1:0.90	60	334	1:5.57
Attack Helicopters	100	85	1:085	28	50	1:1.79
Major SAM Launchers	225	205	1:0.91	0	237	NA

Adapted from the IISS Military Balance 2003 and 2018

C25: Iraq's Strategic Position

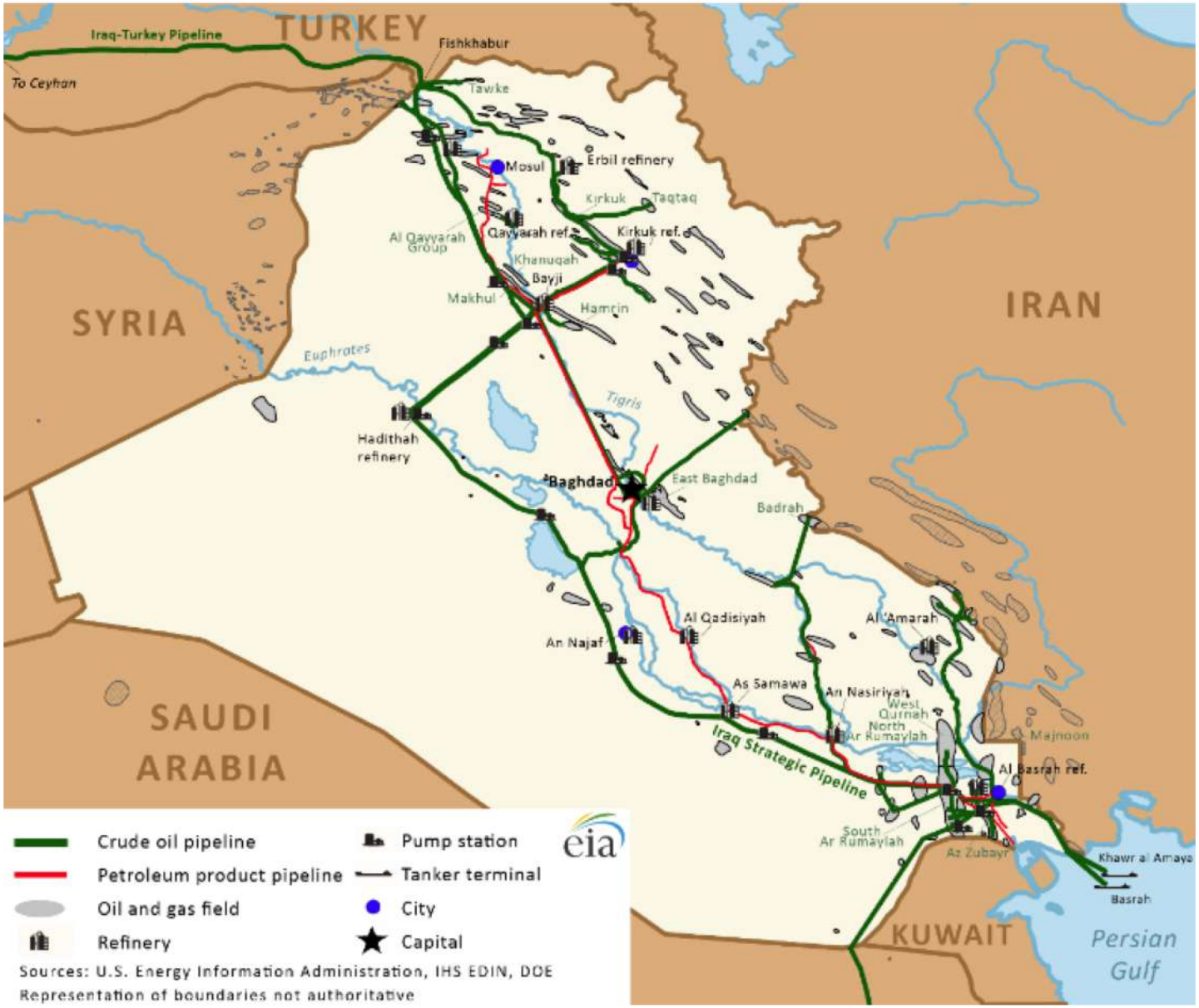


Source: Google, http://www.maps-of-the-world.net/maps/maps-of-asia/maps-of-iraq/large-detailed-political-and-administrative-map-of-iraq-with-roads-and-cities-2008.jpg

C26: The Iran-Iraq Border Area

Source: AustralianNationalUniversity, https://www.google.com/search?q=Iraq-Iran+border+map&client=firefox-b-1&tbm=isch&source=iu&ictx=1&fir=Zx8dCVG47k3E4M%253A%252CwFRRnFBYkytTuM%252C_&usg=__cnRP2OFoY0kS9hilA3osRQOe5BE%3D&sa=X&ved=2ahUKEwijq6S4rMfcAhXNJt8KHSc8DCsQ9QEwAXoECAYQBg#imgrc=slz3ntU760J6uM:

C27: Iraq's Vulnerable Energy Facilities



Source: EIA, Iraq Country Analysis, https://www.eia.gov/beta/international/analysis.php?iso=IRQ

D. Global Arms Transfers: U.S. Government Estimates

U.S. Government Estimates of Arms Transfers

The U.S. government is the second major source of comparative estimates of the arms transfers than shape the Gulf military balance. These estimates do not provide the same insight into the detailed patterns in the sources of exports and purchase by weapons type as the SIPRI data. They do, however, provide comparisons in current and constant dollars -- a far more familiar and comparable way of comparing the volume of arms sales than the TIV system used by SIPIRI.

World Military Expenditures and Arms Transfers (WMEAT) vs. Conventional Arms Transfers to Developing Nations

There are two major sources of such U.S. government data. The first is the U.S. Congressional Research Service (CRS), which provides an estimate of the trends in arms sales called ***Conventional Arms Transfers to Developing Nations, 2008-2015***. This document does not include an analysis of military personnel, military spending, and the economic burden of military spending. *It does, however, cover both actual deliveries and new agreements, and gives a good picture of the trends in arms sales than WMEAT.*

The second is U.S. State Department. It provides a comprehensive estimate of military spending, arms transfers, and military personnel in an annual document called ***World Military Expenditures and Arms Transfers (WMEAT)*** **(https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm).** This document provides an authoritative U.S. official estimate of the key financial trends in arms sales on a global basis. As has been discussed earlier, the latest edition was issued at the end of 2017, and covers the period from 2005- 2015.

Both documents make it clear that there is no way to eliminate major uncertainties in quantifying such trends, even with the resources available to the U.S. government. Even basic tasks like converting local currencies into U.S. dollars involve uncertainties as to real conversion rates and the time chosen, and real world uncertainties grow sharply in trying to estimate the actual price and content of a given sale – particularly if the seller and buyer are trying to conceal some aspect of the transaction or it involves both goods and services.

As has already been discussed, cost is not necessarily an indication of value in terms of military effectiveness. Buying "glitter" does not serve a military purpose. Neither does focusing on weapon numbers rather than support and sustainability, or buying arms for the wrong mission. Some comparisons of Israeli and Arab combat sorties rates, for example, indicate that Israel could generate at least twice as many sorties per day per aircraft overtime. This made a focus on aircraft numbers alone largely irrelevant. Training and readiness are often more important investments than modernization, and a lack of standardization and interoperability can offset the potential advantages of buying more advanced systems.

It should also be clear from the previous discussion of the difference between Arab Gulf countries in approaching arms buys and developing their military forces that they do sacrifice a substantial amount of military effectiveness because national differences and rivalries, the fact that the Gulf Cooperation Council has never developed into a truly effective military alliance, and they often seem to buy without a clear set of mission priorities.

Limits to the Comparability and Inclusiveness of the Conventional Arms Transfers to Developing Nations Data

It is important to note that the latest CRS report that limits its use in any kind of longer-term trend analysis of the kind made using the SIPRI data and raises some questions about the arms sales trend data in WMEAT. The CRS report includes the following important caveats:

> The data in this new report supersede all data published in previous editions. Because these new data for 2008-2015 reflect potentially significant updates to and revisions of the underlying U.S. government databases used for this report, only the data in this most recent edition should be used for comparison of data found in previous reports. The data are expressed in U.S. dollars for the calendar years indicated and adjusted for inflation (see box note below). *U.S. commercially licensed arms export deliveries values are excluded."*
>
> United States commercially licensed arms export deliveries data are not included in this report. The United States is the only major arms supplier that has two distinct systems for the export of weapons: the government-to-government Foreign Military Sales (FMS) system, and the licensed commercial export system. It should be noted that data maintained on U.S. commercial sales agreements and deliveries are incomplete and are not collected or revised on an ongoing basis, making them significantly less precise than those for the U.S. FMS program—which accounts for the overwhelming portion of U.S. conventional arms transfer agreements and deliveries involving weapon systems. There are no official compilations of commercial agreement data comparable to that for the FMS program maintained on an annual basis. Once an exporter receives from the State Department a commercial license authorization to sell—valid for four years—there is no current requirement that the exporter provide to the State Department, on a systematic and ongoing basis, comprehensive details regarding any sales contract that results from the license authorization, including if any such contract is reduced in scope or cancelled. Nor is the exporter required to report that no contract with the prospective buyer resulted.

Key Trends in the Data

That said, the broad trends in the *Conventional Arms Transfers to Developing Nations* data for 2008-2015 are very similar to the trends in the SIPRI data – although they vary significantly in relative proportion in a few national cases. The Arab Gulf (GCC) states again have a massive lead over Iran:

- Total Arab Gulf (GCC) new arms orders were over 300 times larger than Iran's orders in 2008-2011.
- The Arab Gulf lead totaled over 106 million over Iran in 2012-2015, when the GCC orders were 178 times larger than Iran's orders.

- The Arab Gulf (GCC) lead was over $197 million in 2008-2015, and GCC orders were over 220 times larger than Iran's.
- At the same time, the IISS data on the military balance show comparatively small deliveries of major new advanced arms from Iran's military industries.
- Total Arab Gulf arms deliveries were over 39 times larger than Iran's orders in 2008-2011.
- The Arab Gulf lead increased to over 430 times in 2012-2015, when the GCC deliveries were over 400 times larger than Iran's orders.
- Arab Gulf deliveries were over 300 times larger than Iran's over the entire period from 2008-2015.
- The Arab Gulf lead in deliveries was over $120 million in 2008-2015, and GCC orders were over 220 times larger than Iran's.
- The value of this lead was enhanced by the fact that the GCC states had free access to the most advanced U.S. and European arms and Iran did not.

Examining the Details of the CRS Estimates

- ***Figure D1: Iran's Low Expenditures on Military Modernization Compared to the Southern Gulf States*** summarizes the key trends involved. Iran's imports of *conventional arms* are negligible compared to those of the Arab Gulf states, but there is the same sharp increase in arms deliveries in the period after 2011 as in the SIPRI data. Saudi Arabia clearly leads in arms sales, followed by the UAE -- with sharply rising deliveries in Qatar and Oman and Kuwait taking major deliveries as well. There is far less increase of an in new arms agreements between 2008-2011 and 2012-2015, but Qatar makes the kind of major increase shown in the SIPRI data and Oman again emerges as making major increases as well. One key difference from the SIPRI data is that Iraq's new agreements and deliveries both rise at a sharply high level than shown in the SIPRI data.
- As noted earlier, these data also show show massive new arms agreements that will further increase the burden of military expenditures on the economies of Arab Gulf states, -- a burden that already is sometimes some five times higher than the 2% of GDP that the U.S. is seeking from its strategic partners in NATO.
- ***Figure D2: Conventional Arms Transfer Deliveries, 2008-2015*** provides the same data for arms deliveries in graphic form, again highlighting the Saudi lead, the role of the UAE, and the rapid rise in Iraqi and Qatari imports.
- ***Figure D3: Conventional New Arms Agreements, 2008-2015*** shows the rise in new arms agreements. It reflect the same basic trend, but it should be noted that the scale of these new buys is so large relative to the GDP of Saudi Arabia, the UAE, Iraq,

Oman, and Qatar that it raises serious questions about the impact of such buys on the ability of each country to support the level of economic development it needs to provide jobs and meet the needs of its growing population.

- ***Figure D5: New Conventional Arms Deliveries by Supplier, 2008-2015, Figure D6: New Conventional Arms Transfer Agreements by Supplier, 2008-2015***, and ***Figure D7: Proportion of Arms Transfer Agreements, by Supplier, by Country, 2008-2015.*** The CRS data in these three Figures do not provide the same level of country-by-country supplier data as the SIPRI data. All three figures do, however, reinforce key points made in the discussion of the SIPRI estimates. These is a clear lack of standardization in the imports of the Arab Gulf countries. Their imports are dominated by the countries most capable of projecting power to aid them in a crisis or conflict. The U.S. is the largest seller – albeit one of many and is not emerging with a steadily larger market share. It is also clear that Russia is becoming more of major exporter to the region,

- ***Figure D7, Parts I &II:*** This figure shows the data on Gulf country imports and exports for 2005-2015 in current $100 million increments as presented in the U.S. State Department. ***World Military Expenditures and Arms Transfers (WMEAT)*** **(https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm).** These data are useful in showing the size of each countries arms imports relative to its overall balance of trade, but provides so little detail that it is valuable largely in having a source to compare with the previous data to see if the same broad trends consistently emerge.

D1: Iran's Low Expenditures on Military Modernization Compared to the Southern Gulf States

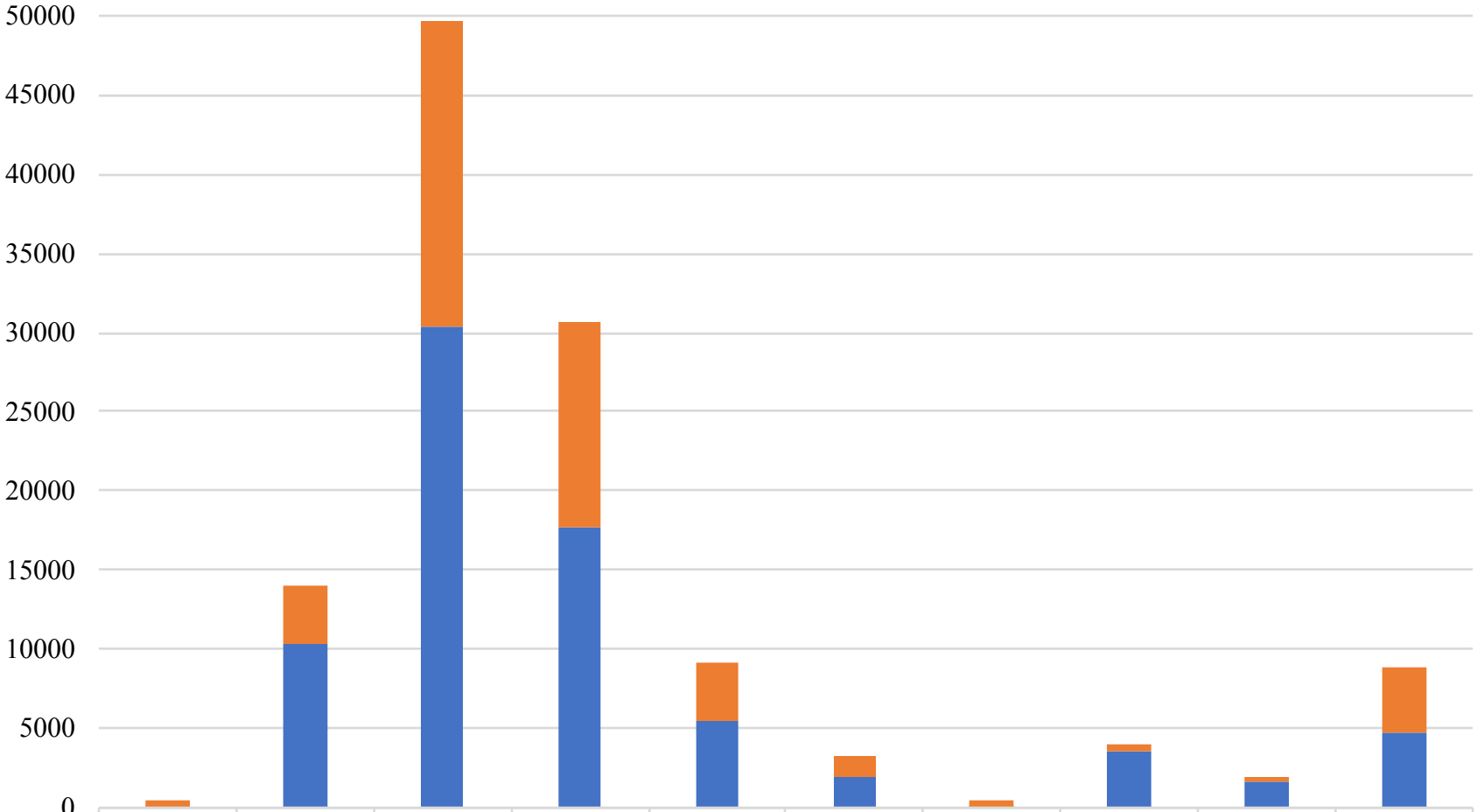
(Gulf Arms Agreements & Deliveries in millions current USD)

Country	Arms Agreements			Arms Deliveries		
	2008-2011	2012-2015	Total	2008-2011	2012-2015	Total
Saudi Arabia	52,500	41,000	93,500	13,000	17,700	30,700
Other GCC Countries						
Bahrain	400	500	900	400	100	500
Kuwait	3,300	4,700	8,000	1,300	1,900	3,200
Oman	3,300	7,200	10,500	500	3,500	4,000
Qatar	1,000	22,900	23,900	300	1,700	2,000
UAE	17,600	8,100	25,700	3,700	5,500	9,200
Total GCC	78,100	84,400	162,500	19,200	30,400	49,600
Iraq	5,200	23,900	29,100	3,700	10,300	14,000
Iran	300	600	900	300	100	400
Yemen	800	100	900	400	200	600

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2008-2015*, Congressional Research Service, December 19, 2016, pp. 36. All data are rounded to the nearest $100 million.

Figure D2: Conventional Arms Transfer Deliveries, 2008-2015

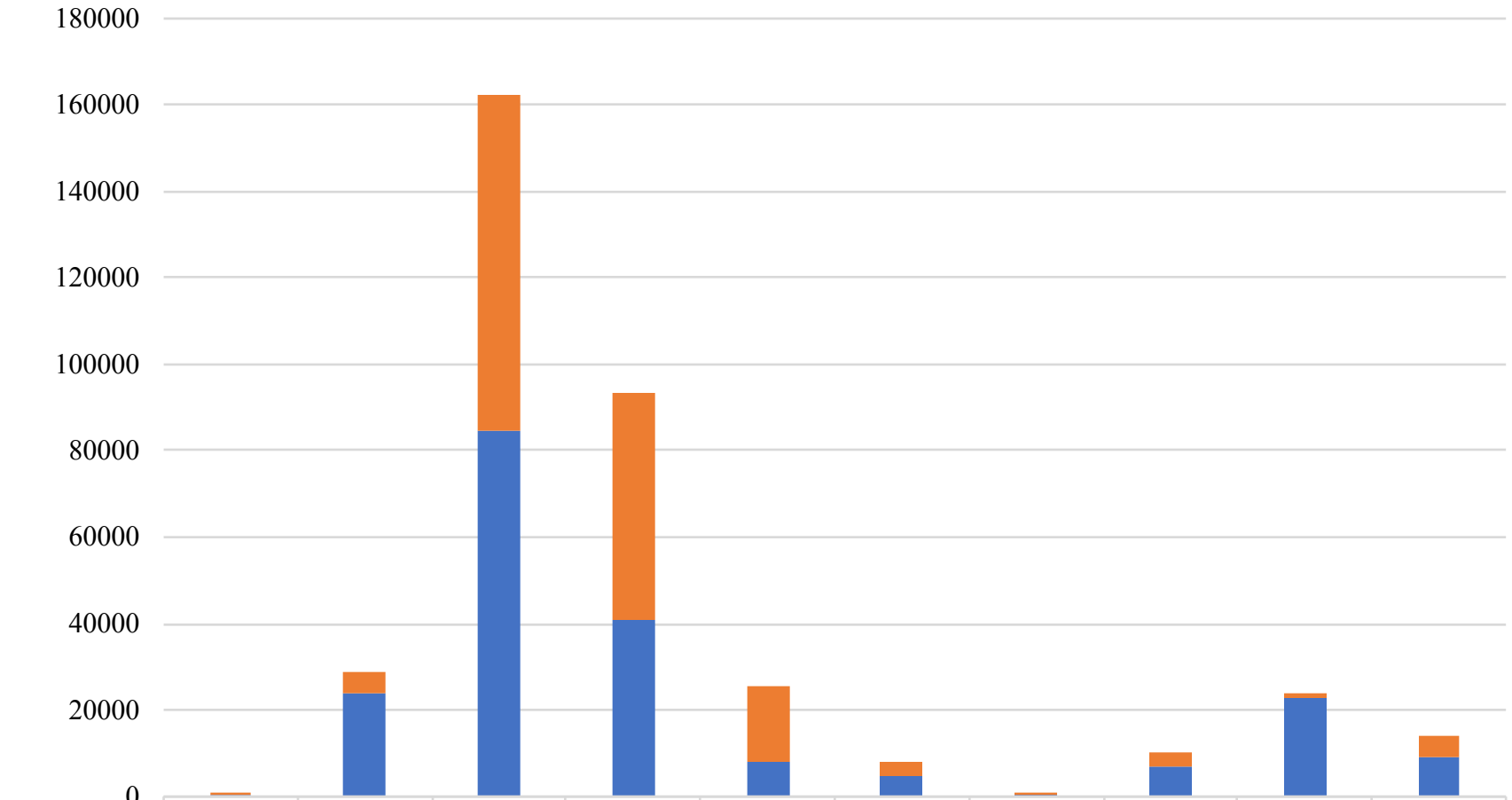
(Current millions $USD)



	Iran	Iraq	GCC	Saudi Arabia	UAE	Kuwait	Bahrain	Oman	Qatar	Israel
2008-2011	300	3700	19200	13000	3700	1300	400	500	300	4000
2012-2015	100	10300	30400	17700	5500	1900	100	3500	1700	4800

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2008-2015*, Congressional Research Service, December 19, 2016, pp. 47. All data are rounded to the nearest $100 million.

D3: New Conventional Arms Transfer Agreements, 2008-2015
(Current millions $USD)

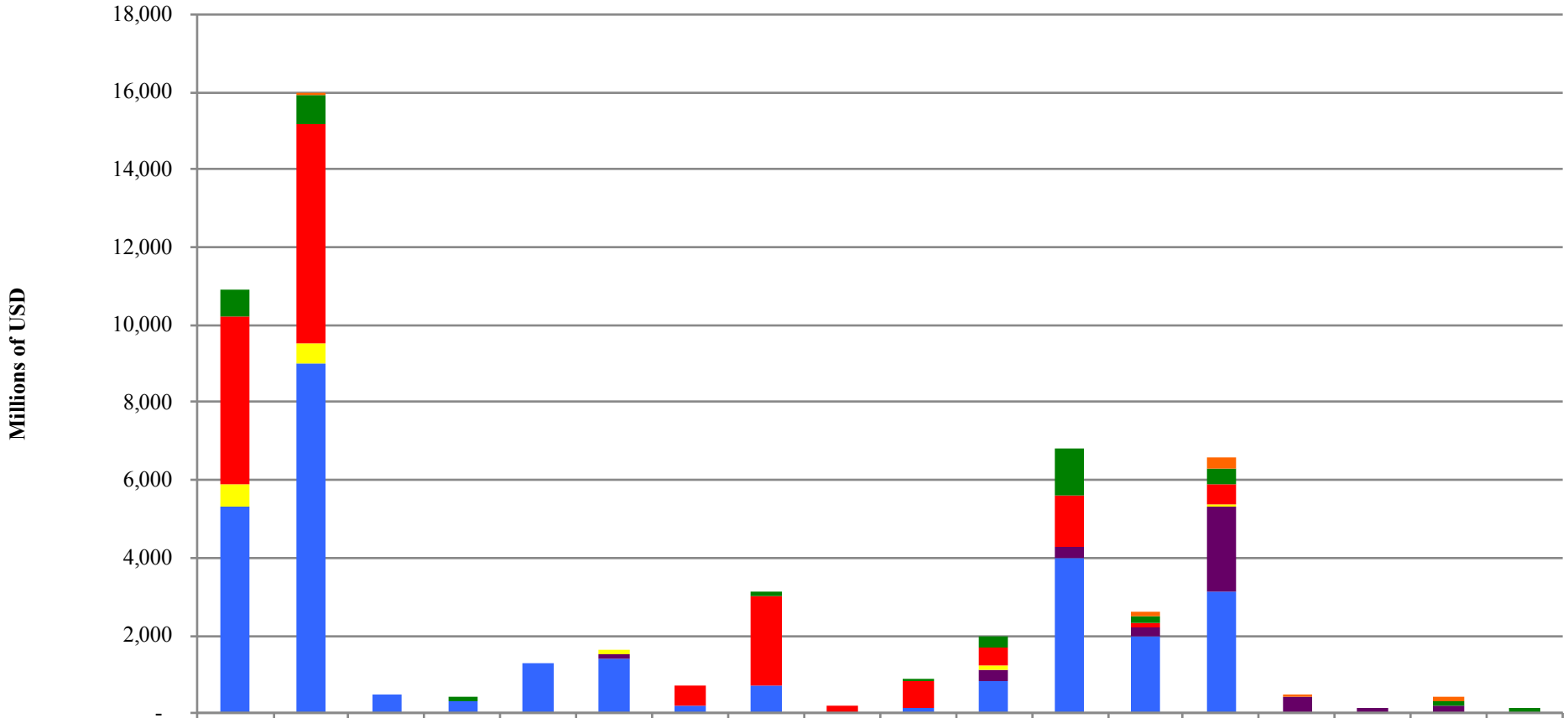


	Iran	Iraq	GCC	Saudi Arabia	UAE	Kuwait	Bahrain	Oman	Qatar	Israel
2008-2011	300	5200	78100	52500	17600	3300	400	3300	1000	5100
2012-2015	600	23900	84400	41000	8100	4700	500	7200	22900	9200

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2008-2015*, Congressional Research Service, December 19, 2016, pp. 36. All data are rounded to the nearest $100 million.

D4: New Conventional Arms Deliveries by Supplier, 2008-2015

(in current millions $USD)



	Saudi Arabia '07-'10	Saudi Arabia '11-'14	Bahrain '07-'10	Bahrain '11-'14	Kuwait '07-'10	Kuwait '11-'14	Oman '07-'10	Oman '11-'14	Qatar '07-'10	Qatar '11-'14	U.A.E. '07-'10	U.A.E. '11-'14	Iran '07-'10	Iran '11-'14	Iraq '07-'10	Iraq '11-'14	Yemen '07-'10	Yemen '11-'14
All Others	-	100	-	-	-	-	-	-	-	-	-	-	100	300	100	-	100	-
All Other European	700	700	-	100	-	-	-	100	-	100	300	1,200	200	400	-	-	100	100
Major West European	4,300	5,700	-	-	-	-	500	2,300	200	700	500	1,300	100	500	-	-	-	-
China	600	500	-	-	-	100	-	-	-	-	100	-	-	100	-	-	-	-
Russia	-	-	-	-	-	100	-	-	-	-	300	300	200	2,200	400	100	200	-
U.S.	5,300	9,000	500	300	1,300	1,400	200	700	-	100	800	4,000	2,000	3,100	-	-	-	-

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2007-2014*, Congressional Research Service, December 21, 2015, pp. 37-38. "0" represents any value below $50 million or nil. All data are rounded to the nearest $100 million .

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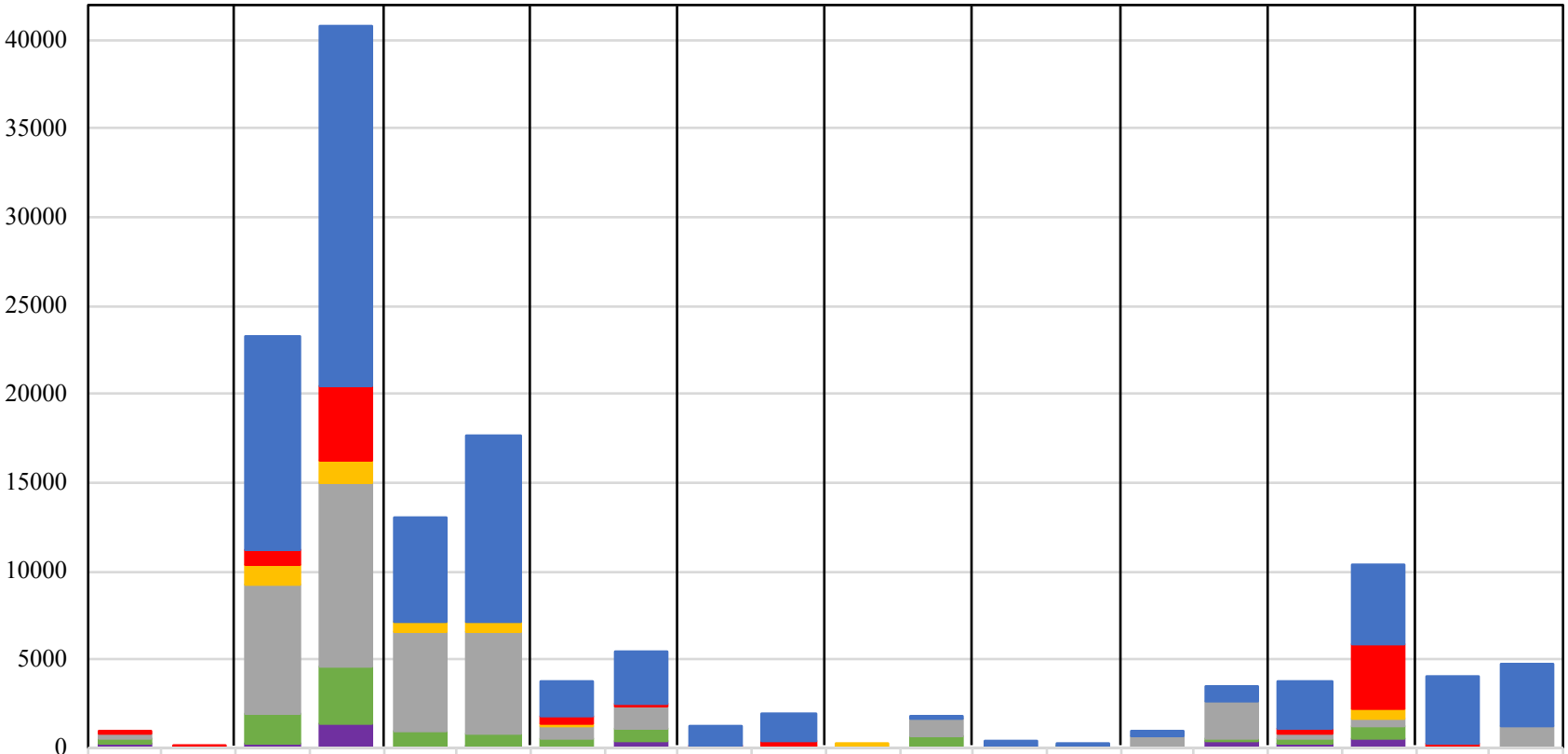
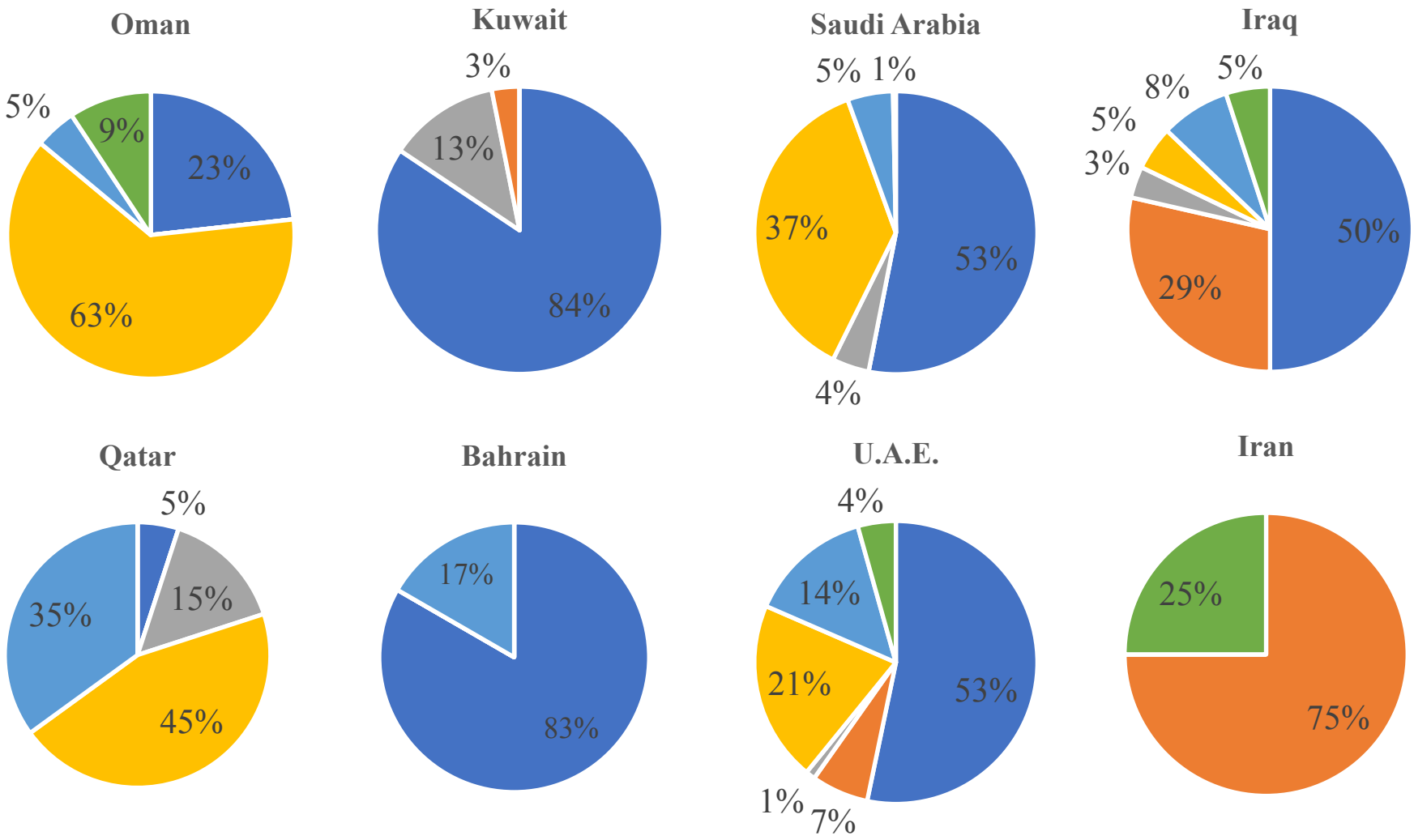
D5: New Conventional Arms Transfer Agreements by Supplier, 2008-2015 (in current millions $USD)



	Iran '08-'11	Iran '12-'15	GCC '08'-11	GCC '12-'15	Saudi Arabia '08'-11	Saudi Arabia '12-'15	UAE '08'-11	UAE '12-'15	Kuwait '08'-11	Kuwait '12-'15	Qatar '08'-11	Qatar '12-'15	Bahrain '08'-11	Bahrain '12-'15	Oman '08'-11	Oman '12-'15	Iraq '08'-11	Iraq '12-'15	Israel '08-'11	Israel '12-'15
U.S.	0	0	12100	20400	5800	10500	1900	3000	1200	1500	0	100	400	100	200	800	2600	4400	3800	3500
Russia	200	100	800	4200	0	0	400	200	100	300	0	0	0	0	0	0	300	3700	200	0
China	0	0	1100	1200	700	600	100	0	0	100	300	0	0	0	0	0	0	500	0	0
Major Western Euro.	300	0	7300	10400	5600	5800	700	1200	0	0	0	900	0	0	700	2100	300	400	0	1300
All Other European	300	0	1800	3200	900	700	600	700	0	0	0	700	0	100	0	200	300	800	0	0
All Others	200	0	200	1400	0	100	0	400	0	0	0	0	0	0	0	400	200	500	0	0

Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2008-2015*, Congressional Research Service, December 19, 2016, pp. 36. All data are rounded to the nearest $100 million.

D.6 Proportion of Arms Transfer Agreements, by Supplier, by Country, 2008-2015



Source: Catherine A. Theohary, *Conventional Arms Transfers to Developing Nations, 2008-2015*, Congressional Research Service, December 19, 2016, pp. 36. All data are rounded to the nearest $100 million.

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D7: WMEAT Data on Gulf Arms Transfers: 2005-2015 - I
(in 100s of current millions $USD)

Value of arms deliveries and total trade by country, 2005-2015 in billions of CURRENT US dollars.

Values are rounded to the nearest $US $0.1 billion ($100 million).

Note:
1. Asterix (*) indicates a value between $0.00003 and $0.05 billion
2. World exports and imports, based chiefly on WB and U.N. Statistical Division data, are not equal
3. Arms trade values include only trade among countries covered by WMEAT and unspecified or multinational entities

Land	Trade Parameter	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Iran	Arms exports (goods & services)	0.1	0.1	0.1	0.1	0.1	*	0.1	*	*	0.1	0.1
Iran	Arms imports (goods & services)	0.2	0.3	0.3	0.1	*	0.1	*	*	*	0.0	*
Iran	All exports (goods & services)	68.6	79.4	100.2	108.9	93.8	118.8	151.9	131.3	140.6	100.7	84.8
Iran	All imports (goods & services)	54.6	62.0	73.6	89.3	87.4	95.1	97.9	121.7	101.2	78.3	70.5
Iran	Arms exports as % of all exports	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%
Iran	Arms imports as % of all imports	0.4%	0.5%	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
Iran	Arms balance as % of trade balance	-1.1%	-1.3%	-0.5%	0.0%	0.8%	-0.3%	0.1%	0.0%	0.0%	0.5%	0.7%
Saudi Arabia	Arms exports (goods & services)	*	*	*	*	*	*	*	*	*	*	*
Saudi Arabia	Arms imports (goods & services)	4.9	5.0	2.0	2.5	4.9	5.9	4.8	5.2	7.8	8.2	8.5
Saudi Arabia	All exports (goods & services)	192.1	225.5	249.7	322.9	202.1	261.8	376.2	399.4	387.7	355.0	218.0
Saudi Arabia	All imports (goods & services)	87.7	113.5	145.7	176.7	162.1	174.2	198.0	215.2	230.0	259.0	247.3
Saudi Arabia	Arms exports as % of all exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Saudi Arabia	Arms imports as % of all imports	5.6%	4.4%	1.4%	1.4%	3.0%	3.4%	2.4%	2.4%	3.4%	3.2%	3.4%
Saudi Arabia	Arms balance as % of trade balance	-4.7%	-4.4%	-2.0%	-1.7%	-12.3%	-6.7%	-2.7%	-2.8%	-4.9%	-8.5%	28.9%
UAE	Arms exports (goods & services)	0.1	*	*	*	0.1	0.1	0.1	*	0.1	*	0.1
UAE	Arms imports (goods & services)	2.6	2.2	1.6	2.1	1.3	2.6	6.1	6.9	7.0	5.7	5.7
UAE	All exports (goods & services)	122.1	152.4	186.7	248.8	202.0	225.3	314.8	375.8	392.6	391.3	360.5
UAE	All imports (goods & services)	93.9	112.9	166.1	219.7	187.1	206.7	252.0	281.3	293.0	305.5	307.8
UAE	Arms exports as % of all exports	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
UAE	Arms imports as % of all imports	2.7%	1.9%	0.9%	1.0%	0.7%	1.3%	2.4%	2.4%	2.4%	1.9%	1.9%
UAE	Arms balance as % of trade balance	-8.6%	-5.5%	-7.5%	-7.1%	-7.5%	-13.4%	-9.5%	-7.3%	-7.0%	-6.6%	-10.6%
Bahrain	Arms exports (goods & services)	0.0	0.0	0.0	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bahrain	Arms imports (goods & services)	1.0	1.1	0.1	0.7	0.2	0.3	0.4	0.3	0.3	0.2	0.2
Bahrain	All exports (goods & services)	13.4	15.7	17.3	21.2	15.7	17.9	22.9	22.9	24.2	24.1	26.3
Bahrain	All imports (goods & services)	10.3	11.6	12.6	16.3	11.4	13.1	13.9	14.7	15.2	14.9	22.3
Bahrain	Arms exports as % of all exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bahrain	Arms imports as % of all imports	9.9%	9.4%	1.0%	4.2%	1.9%	2.1%	2.8%	1.9%	2.1%	1.4%	0.7%
Bahrain	Arms balance as % of trade balance	-32.6%	-26.5%	-2.6%	-13.7%	-5.1%	-5.7%	-4.3%	-3.4%	-3.5%	-2.3%	-4.0%

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017 https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

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D7: WMEAT Data on Gulf Arms Transfers: 2005-2015 - II
(in 100s of current millions $USD)

Value of arms deliveries and total trade by country, 2005-2015 in billions of CURRENT US dollars.

Values are rounded to the nearest $US $0.1 billion ($100 million).

Note:
1. Asterix (*) indicates a value between $0.00003 and $0.05 billion
2. World exports and imports, based chiefly on WB and U.N. Statistical Division data, are not equal
3. Arms trade values include only trade among countries covered by WMEAT and unspecified or multinational entities

Land	Trade Parameter	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kuwait	Arms exports (goods & services)	*	*	*	*	0.0	*	*	*	0.0	*	0.0
Kuwait	Arms imports (goods & services)	1.0	2.2	1.0	1.8	1.0	1.0	1.3	1.1	1.1	1.0	0.8
Kuwait	All exports (goods & services)	50.1	64.9	72.7	98.9	65.9	76.1	113.0	128.5	121.9	111.1	61.4
Kuwait	All imports (goods & services)	23.8	26.9	33.3	38.7	32.3	35.4	41.6	45.3	46.6	51.2	51.1
Kuwait	Arms exports as % of all exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Kuwait	Arms imports as % of all imports	4.0%	8.2%	3.0%	4.7%	3.0%	2.9%	3.2%	2.5%	2.4%	1.9%	1.5%
Kuwait	Arms balance as % of trade balance	-3.6%	-5.8%	-2.6%	-3.0%	-2.9%	-2.5%	-1.9%	-1.3%	-1.5%	-1.7%	-7.7%
Oman	Arms exports (goods & services)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*	0.0
Oman	Arms imports (goods & services)	0.2	0.7	0.1	0.3	0.2	0.3	0.4	1.1	0.8	1.4	0.8
Oman	All exports (goods & services)	19.6	22.9	26.4	39.5	29.3	38.4	49.4	54.8	59.4	56.7	39.2
Oman	All imports (goods & services)	11.2	13.8	19.4	26.6	21.5	24.2	29.2	34.4	41.8	37.9	36.7
Oman	Arms exports as % of all exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Oman	Arms imports as % of all imports	1.4%	5.2%	0.8%	1.0%	1.1%	1.3%	1.2%	3.2%	2.0%	3.8%	2.2%
Oman	Arms balance as % of trade balance	-1.8%	-7.8%	-2.1%	-2.0%	-3.2%	-2.2%	-1.8%	-5.4%	-4.7%	-7.6%	-32.3%
Qatar	Arms exports (goods & services)	0.0	*	0.0	0.0	*	0.0	0.0	*	*	*	0.0
Qatar	Arms imports (goods & services)	0.3	0.3	0.1	0.9	0.5	0.5	1.2	1.5	1.2	0.9	1.7
Qatar	All exports (goods & services)	29.0	38.3	48.1	70.8	50.1	78.1	121.8	142.9	144.5	140.2	92.3
Qatar	All imports (goods & services)	13.2	21.8	28.6	32.4	28.4	29.7	43.8	54.7	59.0	64.0	59.3
Qatar	Arms exports as % of all exports	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Qatar	Arms imports as % of all imports	2.1%	1.5%	0.3%	2.7%	1.6%	1.8%	2.8%	2.8%	2.1%	1.5%	2.8%
Qatar	Arms balance as % of trade balance	-1.7%	-1.9%	-0.4%	-2.3%	-2.1%	-1.1%	-1.6%	-1.7%	-1.4%	-1.2%	-5.1%
Iraq	Arms exports (goods & services)	*	0.0	*	*	*	*	*	0.0	*	0.0	0.0
Iraq	Arms imports (goods & services)	2.0	2.0	1.2	3.7	3.0	2.3	3.5	2.6	2.3	4.5	5.6
Iraq	All exports (goods & services)	24.1	30.9	40.5	65.2	41.6	54.6	82.5	97.0	93.1	88.1	49.7
Iraq	All imports (goods & services)	26.1	24.2	21.5	37.3	43.8	47.2	51.8	63.4	65.1	60.0	45.8
Iraq	Arms exports as % of all exports	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Iraq	Arms imports as % of all imports	7.7%	8.5%	5.6%	10.0%	6.9%	4.9%	6.7%	4.2%	3.5%	7.5%	12.2%
Iraq	Arms balance as % of trade balance	98.3%	-30.6%	-6.3%	-13.3%	136.2%	-31.2%	-11.3%	-7.9%	-8.1%	-15.9%	-143.1%

Source: United States State Department World Military Expenditures and Arms Transfers (WMEAT), 2017 https://www.state.gov/t/avc/rls/rpt/wmeat/2017/index.htm

E. U.S. Government Reporting of U.S. Arms Sales

E. U.S. Government Reporting of U.S. Arms Transfers and Sales

Most arms exporting governments do not provide summary or detailed data on their overall arms transfers and sales to the Gulf or other importing states. The U.S. government is an exception. It reports such data on U.S. arms transfers and sales through its Department of Defense Security Cooperation Agency (DSCA). These reports only cover US sales, but provide data back to 1950, and the actual current dollar value of such transfers, aid, and sales. Its *Fiscal Year Series (http://www.dsca.mil/resources/dsca-historical-facts-book-fiscal-year-series)* report shows the U.S. total of all kinds of transfer, aid, and sales to each country by Fiscal Year from 1970 to most current reporting period – 2017. Its *Historical Series (http://www.dsca.mil/resources/dsca-historical-facts-book-fiscal-year-series)* provides similar data for each country by type of aid.

These data often differ from other reporting because they represent the actual dollar value of sales made in a given years – not the announced value –and include aid, commercial sales, construction, and financing. The total spending data for each Gulf country are shown in the figures that follow.

The two most important categories for the purposes of analyzing the impact of such sales on the Gulf military balance are presented in the Fiscal Year Services, and include:

- **FOREIGN MILITARY SALES (FMS) AGREEMENTS** - Total dollar value of defense articles and defense services purchased with cash, credit, and MAP Merger Funds by a foreign government or international organization in any fiscal year. Also see Item 7, Military Assistance Program Merger Funds. Values are updated annually to reflect program changes.
- **FOREIGN MILITARY SALES (FMS) DELIVERIES** - Total dollar value of defense articles and defense services delivered to a foreign government or international organization in any fiscal year. After implementing an FMS agreement, the responsible military department directs release of materiel from stocks or procurement or provision of services or training. As execution progresses, the military department report accrued expenditures and or provision of services or training. As execution progresses, the military department report accrued expenditures and physical deliveries after shipment or performance. Values are updated annually to reflect program changes.

FMS Sales

Here, it is important to note the difference between FMS and commercial sales, and the unique character of U.S. arms transfer in this respect.. The DSCA instructions to states seeking arms transfers under this program state that,

> Foreign Military Sales (FMS) is a program that allows your government to purchase defense articles and services as well as design and construction services, from the U.S. Government (USG). This program is operated on a "no-profit" and "no-loss" basis to the USG and requires an authorized representative from your government to submit a Letter of Request (LOR) to the USG for the desired defense articles and services.
>
> Under FMS, the U.S. Department of Defense (DoD) procures defense articles and services for your country using the same acquisition process used to procure for its own military needs. This acquisition process is governed by the Federal Acquisition Regulation (FAR) and the Defense Federal

Acquisition Regulation Supplement (DFARS). You, the foreign purchaser, benefit from U.S. DoD technical and operational expertise, procurement infrastructure, and purchasing practices. Your country also benefits from the lower unit costs that result when the U.S. DoD is able to combine your purchase with one of its own to achieve greater economy of scale. In addition, the U.S. DoD ensures your purchase takes into consideration all of the necessary training, support, and sustainment to give you the lasting operational capability you seek, known as the "Total Package Approach". Finally, a major FMS program increases your country's interoperability with U.S. military forces, creating potential opportunities for joint training, joint exercises, cooperation in humanitarian assistance and disaster relief, and peacekeeping operations.

FMS requires a government-to-government agreement, known as a Letter of Offer and Acceptance (LOA) and also referred to as an "FMS case". When your U.S. counterparts speak of "writing a case", they are talking about drafting an LOA. The LOA is written by the USG and must be formally accepted by your government. The LOA specifies the items and services to be provided to your country and an estimated cost and timeframe for doing so. The USG may supply items from its own stocks or it may enter into a contract with a defense contractor to obtain the items on your behalf. Any contracts with U.S. defense contractors, if needed, will be written by the USG using standard USG competitive contracting procedures, to include robust oversight and auditing. The contract will be between the USG and the U.S. defense contractor. The USG then provides the equipment or service to your country as agreed in the government-to-government LOA. FMS customers are not legal participants in the procurement contract.

By Policy, the USG does not conduct FMS for profit. By U.S. law, the USG may not incur debt on an FMS sale to your country. The LOA will require that your country pay the full cost associated with the FMS sale - which includes the cost of the defense equipment/services and any costs incurred by the USG while providing you with the defense equipment/services. We must ensure that, when the equipment or service is delivered and the case is closed, the USG has neither made a profit nor passed a debt to the U.S. taxpayer.

To build and re-build the administrative infrastructure necessary to support individual FMS cases would be a slow process and very costly to our foreign partners. Therefore, the USG maintains a standing infrastructure at the DoD level, within each of the Military Departments (MILDEPs), and within select other DoD organizations that conduct FMS. That standing infrastructure - skilled employees, information technology systems, offices, etc. - is funded by an administrative surcharge applied to every FMS case. The FMS administrative surcharge fund is managed by the Defense Security Cooperation Agency (DSCA) under the oversight of the DoD Comptroller.

The Broad Trends in U.S. Arms Sales

The Figures in this section provide the country data for each Gulf country provided in the *Fiscal Year Series*, along with an initial Figure summarizing the overall pattern in U.S. sales to the region.

- ***Figure E1: Comparative Value of U.S. Arms Transfers and Arms Sales to the Gulf States:*** This figure shows the immense gaps between Arab Gulf access to U.S. arms and Iran's lack of access since the fall of the Shah. It also shows the massive scale of Arab Gulf new sales agreements with the U.S. since 2017, and that well over $70 billion worth of U.S. arms had to still have been waiting for delivery at the end of FY2017. Once again, it illustrates how badly President President Obama and President Trump have been is calling for added burden sharing by America's strategic partners in the Gulf without have a clear picture of their currents pending and defense burden and how the growing volume of their arms orders might affect their economies and internal stability.

- ***Figure E2: U.S. Arms Transfers and Arms Sales to Iran:*** Figure E2 again highlights the massive disparity in Arab Gulf versus Iranian access to the most advanced military weapons and systems. It also, however, illustrate the problems Iran faces in relying on so much Western equipment that is now combat worn and obsolescent to obsolete. Iran has not had access to any of the modernization programs for this equipment, or to reliable and well-organized sources of munitions and parts. This is a major problem for any operating country because it will generally lack the technology to modernize at anything like the rate, or as well, of a country with good access to the original supplier.

  The upgrade and modernization, maintenance, and arming of modern combat systems can also easily equal their original procurement cost even with full access to the original supplier. Work arounds, substitutes, and small lot manufacture of substitute parts can a sharply raise these –particularly when systems are worn or have their normal life cycles stretched because of a lack of replacements. Iran seems to have do a competent and creative job in keeping its U.S. and other older arms running, but older weapons become a progressively greater burden with time. It also is difficult to make any informed judgment about how many systems it operates can be kept operational under the stress of combat, and the extent to which it has been forced to "cannibalize" some weapons to keep others operational

- ***Figure E3: U.S. Arms Transfers and Arms Sales to Saudi Arabia:*** This Figure highlights the growing gap between deliveries and new agreements, and the massive scale of Saudi purchases. Many of Saudi buys do seem well-chosen to meet the Kingdom's mission priorities, but the sheer volume of such purchases, and the growing backlog of future payments is disturbing. So are what seem to be totally impractical goals for creating Saudi military industries which seem likely to do little more than tie the Saudis to given contractors at a high profit to the contractor and involve serious diseconomies of scale.
- ***Figure E4: U.S. Arms Transfers and Arms Sales to the UAE:*** The UAE provides another example of potential overbuying, although the figures are less dramatic.
- ***Figure E5: U.S. Arms Transfers and Arms Sales to the Kuwait:*** Kuwait's purchases seem more moderate relative to its military needs, but the scale involved indicates that much of their value lies in a continued U.S. military commitment to rapid deployment in a major crisis.
- ***Figure E6: U.S. Arms Transfers and Arms Sales to the Bahrain:*** Bahrain's level of purchases seem to match its requirements, but its economy is currently under considerable pressure.
- ***Figure F7: U.S. Arms Transfers and Arms Sales to the Bahrain:*** Oman is another case where its security spending is a very high percentage of GDP, and is arms purchase raise question about their affordability relative to its civil and economic development needs..

- ***Figure E8: U.S. Arms Transfers and Arms Sales to Qatar:*** Qatar can certainly afford its current sales agreements, and may be able overtime to obtain sufficient native and foreign military manpower to operate and supports its buys of major weapons. Some of its purchase plans form the U. S. and other suppliers, however, seem designed more to obtain political support from the seller than serve a military purpose.
- ***Figure E9: U.S. Arms Transfers and Arms Sales to Iraq:*** The sheer volume of Iranian arms purchases is not an immediate issue, although Iraq has massive needs for funds to finance recovery and reconstruction, and to modernize and reform its economy. Iraq is still fighting a major war against ISIS, although it has liberated virtually all of its population centers. What is unclear is the extent to which its current order will give it the mix of deterrent and defense capabilities to deter neighboring states like Iran and pressure from Syria, and whether it will have a stable future government that remain aligned with the U.S. It remains a major wild card in the Gulf military balance.

E1: U.S Arms Transfers to the Gulf States 1950-2017

(Current $US Billions)

Category	Iran	GCC	Saudi	UAE	Kuwait	Bahrain	Oman	Qatar	Iraq
Total Sales Agreements									
1950-2017	10.716	244.890	173.239	22.022	17.631	3.226	3.868	24.904	18.361
2001-2017	0	154.615	92.723	21.759	10.044	1.518	3.675	24.896	18.348
2010-2017	0	121.262	76.038	10.620	6.654	0.667	2.598	24.685	13.648
Total Deliveries									
1950-2017	10.705	130.093	105.883	6.418	12.547	2.616	1.942	0.687	10.678
2001-2017	0	48.800	32.470	6.415	6.023	1.454	1.758	0.680	10.665
2010-2017	0	32.729	21.813	5.505	3.250	0.510	0.981	0.670	9.085

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30,2017, http://www.dsca.osd.mil/.

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E2: U.S Arms Sales to Iran: 2001-2017
(Current $US Thousands)

IRAN

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	-	-	-	-	-	-	-	-	-	-
02	-	-	-	-	-	-	-	-	-	-
03	-	-	-	-	-	-	-	-	-	-
04	-	-	-	-	-	-	-	-	-	-
05	-	-	-	-	-	-	-	-	-	-
06	-	-	-	-	-	-	-	-	-	-
07	-	-	-	-	-	-	-	-	-	-
08	-	-	-	-	-	-	-	-	-	-
09	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	*	-	*	-	-	-	-	-	-
TOTAL	10,716,011	10,704,944	10,715,417	10,704,350	594	594	-	175,705	320,701	670,767

Total Sales Agreements		Total Sales Deliveries	
1950-2017:	10,716,011	1950-2017:	10,704,944
2001-2017:	0	2001-2017:	0
2010-2017:	0	2010-2017:	0

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30,2017, http://www.dsca.osd.mil/.

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E3:U.S Arms Sales to Saudi Arabia: 2001-2017- I

(Current $US Thousands)

SAUDI ARABIA

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	654,070	1,797,089	654,070	1,682,374	-	114,715	-	-	-	1,028
02	883,451	1,263,524	883,451	1,172,667	-	90,857	-	-	-	530
03	674,276	953,729	647,224	897,080	27,052	56,649	-	-	-	36,150
04	1,837,974	1,118,902	1,784,841	1,098,855	53,133	20,047	-	-	-	45,709
05	707,130	871,665	707,130	839,922	-	31,743	-	-	-	85,352
06	811,326	984,216	811,326	930,084	-	54,132	-	-	-	124,840
07	1,656,931	1,045,002	1,601,763	1,007,635	55,168	37,367	-	-	-	38,205
08	6,230,458	911,142	6,229,458	894,590	1,000	16,553	-	-	-	232,082
09	3,228,608	1,721,141	2,795,082	1,686,883	433,526	34,259	-	-	-	-
10	2,403,470	1,679,252	2,014,260	1,587,109	389,210	92,143	-	-	-	-
11	3,601,637	1,484,407	3,304,800	1,369,105	296,837	115,302	-	-	-	-
12	35,091,879	1,606,580	34,681,154	1,500,813	410,725	105,767	-	-	-	-
13	2,862,374	3,294,630	2,862,374	3,130,734	-	163,896	-	-	-	-
14	3,881,051	2,251,739	3,842,404	2,159,018	38,647	92,721	-	-	-	-
15	12,281,009	2,788,080	11,951,009	2,653,604	330,000	134,476	-	-	-	-
16	1,967,757	3,178,614	1,967,757	3,054,378	-	124,235	-	-	-	-
17	13,949,263	5,529,762	13,324,042	5,424,645	625,222	105,118	-	-	-	-
TOTAL	173,229,251	105,882,753	153,162,433	87,714,672	20,066,818	18,168,081	-	65,222	188,945	2,627,522

Total Sales Agreements

1950-2017: 173,229,251
2001-2017: 92,722,664
2010-2017: 76,038,440

Total Sales Deliveries

1950-2017: 105,882,753
2001-2017: 32,479,474
2010-2017: 21,813,064

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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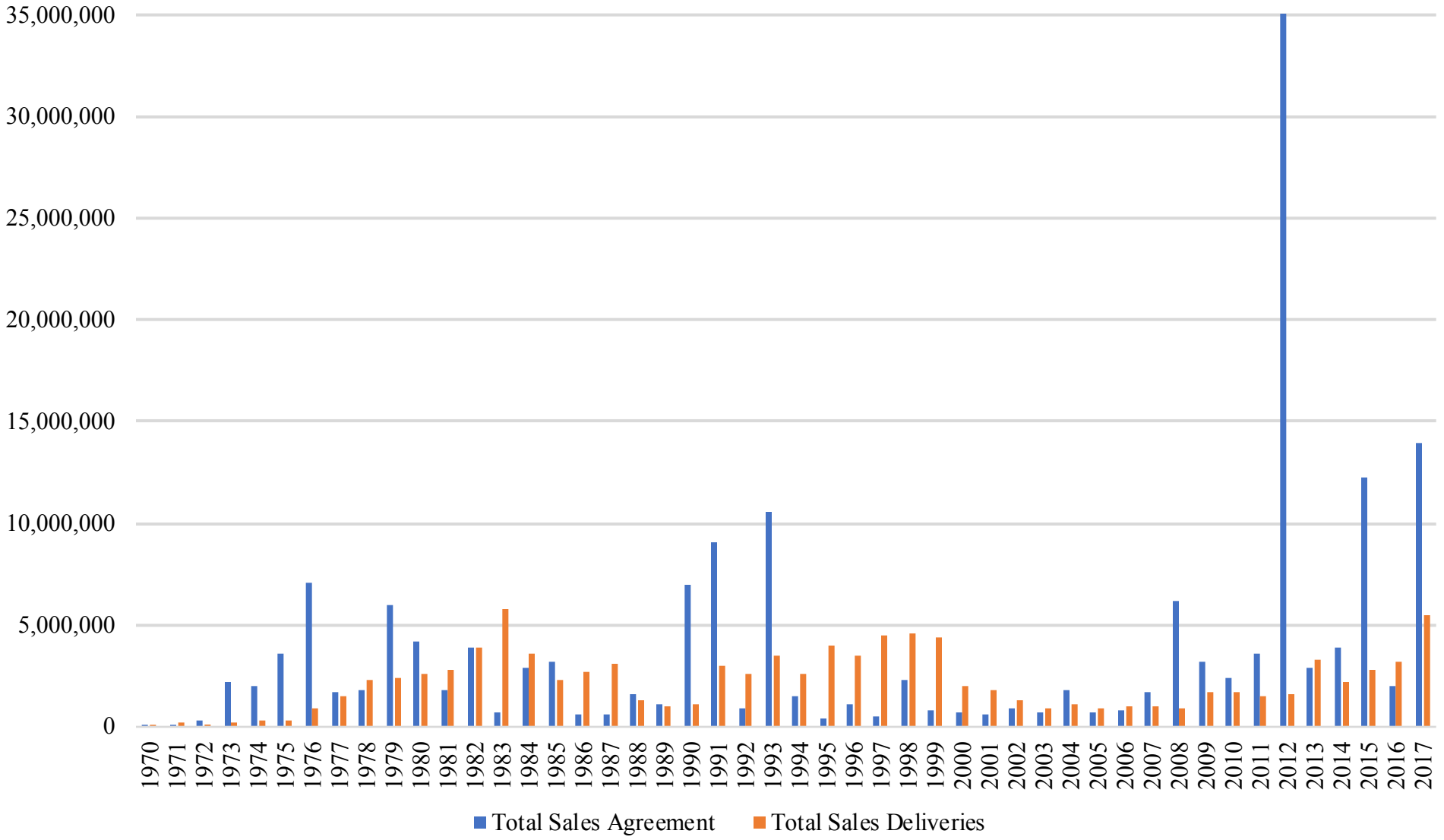
E.3 U.S Arms Sales to Saudi Arabia: 2001-2017-II

(Thousands Current $US)



Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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E4: U.S Arms Sales to the UAE: 2001-2017
(Current $US Thousands)

UNITED ARAB EMIRATES

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	154,637	15,505	154,637	15,505	-	-	-	-	-	3,608
02	182,191	53,146	182,191	53,146	-	-	-	-	-	3,979
03	124,637	84,118	124,637	84,118	-	-	-	-	-	20,535
04	156,593	153,672	156,593	153,672	-	-	-	-	-	360,820
05	26,556	149,194	26,556	149,194	-	-	-	-	-	1,041,638
06	766,526	191,433	766,526	191,433	-	-	-	-	-	1,464,928
07	1,602,335	61,989	1,602,335	61,989	-	-	-	-	-	451,112
08	617,335	82,612	617,335	82,612	-	-	-	-	-	1,034,029
09	7,508,304	118,502	7,508,277	118,501	27	1	-	-	-	-
10	493,188	577,444	493,188	577,421	-	23	-	-	-	-
11	1,514,631	631,205	1,514,631	631,205	-	-	-	-	-	-
12	3,761,137	1,353,987	3,761,137	1,353,987	-	-	-	-	-	-
13	1,966,952	765,581	1,966,952	765,581	-	-	-	-	-	-
14	91,675	796,277	91,675	796,277	-	-	-	-	-	-
15	1,190,830	450,497	1,190,830	450,497	-	-	-	-	-	-
16	1,264,416	554,791	1,264,416	554,791	-	-	-	-	-	-
17	337,338	375,255	337,338	375,255	-	-	-	-	-	-
TOTAL	22,022,028	6,417,858	22,022,001	6,417,834	27	24	-	-	-	4,384,574

Total Sales Agreements	Total Sales Deliveries
1950-2017: 22,022,028	1950-2017: 6,417,858
2001-2017: 21,759,281	2001-2017: 6,415,208
2010-2017: 10,620,167	2010-2017: 5,505,037

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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E5: U.S Arms Sales to Kuwait: 2001-2017

(Current $US Thousands)

KUWAIT

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	275,537	501,866	275,537	501,801	-	64	-	-	-	82
02	989,629	130,745	972,881	130,745	16,749	*	-	-	-	68
03	311,252	143,414	307,969	143,407	3,283	7	-	-	-	9,360
04	103,393	209,226	83,880	209,226	19,512	-	-	-	-	63,773
05	93,996	290,923	93,996	277,514	-	13,409	-	-	-	586,570
06	658,546	544,787	658,546	541,580	-	3,207	-	-	-	1,609,209
07	80,038	454,602	80,038	454,602	-	-	-	-	-	32,664
08	514,386	245,138	514,386	245,138	-	-	-	-	-	1,474,238
09	363,266	251,632	320,209	251,528	43,057	104	-	-	-	-
10	1,177,686	241,770	1,059,341	235,880	118,345	5,890	-	-	-	-
11	436,624	433,591	412,539	416,728	24,085	16,863	-	-	-	-
12	178,758	261,921	178,758	235,401	-	26,520	-	-	-	-
13	1,271,361	302,611	1,271,361	290,858	-	11,754	-	-	-	-
14	2,026,743	552,919	1,942,372	548,877	84,371	4,041	-	-	-	-
15	854,786	368,435	854,786	364,264	-	4,171	-	-	-	-
16	132,350	473,898	132,350	442,791	-	31,107	-	-	-	-
17	576,071	615,091	573,049	590,961	3,022	24,130	-	-	-	-
TOTAL	17,630,744	12,546,656	17,156,806	12,257,279	473,939	289,377	-	-	-	3,885,540

Total Sales Agreements	Total Sales Deliveries
1950-2017: 17,630,744	1950-2017: 12,546,656
2001-2017: 10,044,422	2001-2017: 6,022,569
2010-2017: 6,654,379	2010-2017: 3,250,236

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30,2017, http://www.dsca.osd.mil/.

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E6: U.S Arms Sales to Bahrain: 2001-2017

BAHRAIN

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	107,798	338,258	107,798	338,215	-	43	-	-	-	342
02	85,389	83,666	85,389	83,665	-	*	28,500	-	-	11
03	102,446	89,946	102,446	89,946	-	-	90,000	-	-	246
04	68,227	87,822	68,227	87,822	-	-	24,682	-	-	2,139
05	26,242	63,208	26,242	63,208	-	-	18,847	-	-	921,775
06	87,802	54,673	87,802	54,673	-	-	15,593	-	-	871,438
07	202,415	84,059	202,415	84,059	-	-	14,998	-	-	7,352
08	75,636	41,891	75,636	41,891	-	-	3,968	-	-	618,122
09	94,462	100,867	94,462	100,867	-	-	8,000	-	-	-
10	87,052	110,998	87,052	110,998	-	-	19,000	-	-	-
11	104,334	50,701	104,334	50,701	-	-	15,461	-	-	-
12	25,589	93,903	25,589	93,903	-	-	10,000	-	-	-
13	59,985	68,667	59,985	68,667	-	-	12,575	-	-	-
14	84,636	55,620	84,636	55,620	-	-	10,000	-	-	-
15	45,531	35,081	45,531	35,081	-	-	7,500	-	-	-
16	192,503	29,521	192,503	29,521	-	-	5,000	-	-	-
17	67,505	65,388	67,505	65,388	-	-	-	-	-	-
TOTAL	3,225,597	2,615,644	3,204,481	2,594,528	21,116	21,116	285,624	-	-	2,450,091

Total Sales Agreements

1950-2017: 3,225,597
2001-2017: 1,517,552
2010-2017: 667,135

Total Sales Deliveries

1950-2017: 2,615,644
2001-2017: 1,454,269
2010-2017: 509,879

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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E7: U.S Arms Sales to Oman: 2001-2017
(Current $US Thousands)

OMAN

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	3,289	3,744	3,289	3,744	-	-	-	-	-	176
02	740,366	1,587	740,366	1,587	-	-	25,000	-	-	2
03	9,327	16,512	9,327	16,512	-	-	81,000	-	-	839
04	102,060	27,136	100,581	27,136	1,479	-	24,850	-	-	48,618
05	44,288	91,382	43,698	91,382	590	-	19,840	-	-	7,498
06	17,216	432,398	17,216	432,287	-	110	13,860	-	-	208,737
07	38,609	104,148	38,609	104,037	-	111	13,494	-	-	5,790
08	31,292	57,316	27,154	57,172	4,138	144	4,712	-	-	15,767
09	90,648	42,849	90,648	42,849	-	*	7,000	-	-	-
10	11,522	34,404	11,522	29,981	-	4,423	8,847	-	-	-
11	134,525	36,024	134,525	36,024	-	-	13,000	-	-	-
12	1,465,953	48,901	1,465,953	48,901	-	-	8,000	-	-	-
13	651,274	57,865	651,274	57,865	-	-	7,595	-	-	-
14	52,343	413,356	52,343	413,335	-	21	8,000	-	-	-
15	31,320	177,946	31,320	176,549	-	1,397	4,000	-	-	-
16	22,772	141,384	22,772	141,384	-	-	2,000	-	-	-
17	228,044	71,174	228,044	71,174	-	-	-	-	-	-
TOTAL	3,868,487	1,941,605	3,860,769	1,933,887	7,718	7,718	245,698	49,140	150,000	336,819

Total Sales Agreements

1950-2017: 3,868,487
2001-2017: 3,674,848
2010-2017: 2,597,753

Total Sales Deliveries

1950-2017: 1,941,605
2001-2017: 1,758,126
2010-2017: 981,054

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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E8: U.S Arms Sales to Oman: 2001-2017
(Current $US Thousands)

OMAN

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	3,289	3,744	3,289	3,744	-	-	-	-	-	176
02	740,366	1,587	740,366	1,587	-	-	25,000	-	-	2
03	9,327	16,512	9,327	16,512	-	-	81,000	-	-	839
04	102,060	27,136	100,581	27,136	1,479	-	24,850	-	-	48,618
05	44,288	91,382	43,698	91,382	590	-	19,840	-	-	7,498
06	17,216	432,398	17,216	432,287	-	110	13,860	-	-	208,737
07	38,609	104,148	38,609	104,037	-	111	13,494	-	-	5,790
08	31,292	57,316	27,154	57,172	4,138	144	4,712	-	-	15,767
09	90,648	42,849	90,648	42,849	-	*	7,000	-	-	-
10	11,522	34,404	11,522	29,981	-	4,423	8,847	-	-	-
11	134,525	36,024	134,525	36,024	-	-	13,000	-	-	-
12	1,465,953	48,901	1,465,953	48,901	-	-	8,000	-	-	-
13	651,274	57,865	651,274	57,865	-	-	7,595	-	-	-
14	52,343	413,356	52,343	413,335	-	21	8,000	-	-	-
15	31,320	177,946	31,320	176,549	-	1,397	4,000	-	-	-
16	22,772	141,384	22,772	141,384	-	-	2,000	-	-	-
17	228,044	71,174	228,044	71,174	-	-	-	-	-	-
TOTAL	3,868,487	1,941,605	3,860,769	1,933,887	7,718	7,718	245,698	49,140	150,000	336,819

Total Sales Agreements

1950-2017: 3,868,487
2001-2017: 3,674,848
2010-2017: 2,597,753

Total Sales Deliveries

1950-2017: 1,941,605
2001-2017: 1,758,126
2010-2017: 982,054

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30,2017, http://www.dsca.osd.mil/.

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

E9: U.S Arms Sales to Qatar: 2001-2017

(Current $US Thousands)

QATAR

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	3	788	3	788	-	-	-	-	-	-
02	1,176	827	1,176	827	-	-	-	-	-	-
03	5,999	1,024	5,999	1,024	-	-	-	-	-	219
04	3,000	329	3,000	329	-	-	-	-	-	1,612
05	18	354	18	354	-	-	-	-	-	262,079
06	-	464	-	464	-	-	-	-	-	328,409
07	26	792	26	792	-	-	-	-	-	10,277
08	16,633	1,123	16,633	1,123	-	-	-	-	-	876,465
09	183,939	4,009	183,939	4,009	-	-	-	-	-	-
10	17,741	13,995	17,741	13,995	-	-	-	-	-	-
11	1,179	17,108	1,179	17,108	-	-	-	-	-	-
12	43,762	26,781	43,762	26,781	-	-	-	-	-	-
13	-	41,247	-	41,247	-	-	-	-	-	-
14	9,829,122	26,313	8,766,962	26,313	1,062,159	-	-	-	-	-
15	16,761	118,813	16,761	111,897	-	6,916	-	-	-	-
16	77,681	147,574	77,681	127,925	-	19,650	-	-	-	-
17	14,698,799	278,364	14,300,380	209,836	398,419	68,528	-	-	-	-
TOTAL	24,904,120	686,667	23,443,542	591,574	1,460,578	95,093	-	-	-	1,505,737

Total Sales Agreements	Total Sales Deliveries
1950-2017: 24,904,120	1950-2017: 686,667
2001-2017: 24,895,839	2001-2017: 679,905
2010-2017: 24,685,045	2010-2017: 670,195

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

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E10: U.S Arms Sales to Iraq: 2001-2017
(Current $US Thousands)

IRAQ

YEAR	TOTAL SALES AGREEMENTS	TOTAL SALES DELIVERIES	FMS AGREEMENTS	FMS DELIVERIES	FMCS AGREEMENTS	FMCS DELIVERIES	FOREIGN MIL FIN WAIVED	FOREIGN MIL FIN DIRECT	FOREIGN MIL FIN GUARANTY	COMMERCIAL EXPORTS DELIVERIES
01	-	-	-	-	-	-	-	-	-	-
02	-	-	-	-	-	-	-	-	-	-
03	-	-	-	-	-	-	-	-	-	-
04	-	-	-	-	-	-	-	-	-	32,123
05	80,724	-	80,724	-	-	-	-	-	-	1,682,926
06	-	2,196	-	2,196	-	-	-	-	-	1,673,519
07	1,257,016	172,514	1,020,226	172,514	236,791	-	-	-	-	103,358
08	2,244,731	684,765	2,194,696	683,419	50,036	1,346	-	-	-	2,830,786
09	1,117,275	720,491	930,679	691,997	186,597	28,495	-	-	-	-
10	824,216	399,658	786,480	351,228	37,736	48,430	-	-	-	-
11	1,850,237	764,916	1,755,692	513,166	94,545	251,750	-	-	-	-
12	1,621,790	609,770	1,511,790	558,948	110,000	50,822	850,000	-	-	-
13	2,528,553	519,953	2,411,076	442,452	117,477	77,500	37,291	-	-	-
14	2,739,041	1,098,247	2,600,241	1,085,416	138,800	12,831	-	-	-	-
15	961,467	1,721,995	961,467	1,570,768	-	151,228	-	-	-	-
16	382,865	2,215,923	382,561	2,169,467	305	46,456	150,000	2,700,000	-	-
17	2,740,336	1,754,657	2,337,437	1,608,043	402,899	146,614	107,378	-	-	-
TOTAL	18,361,405	10,678,238	16,986,221	9,862,766	1,375,184	815,472	1,144,669	2,700,000	-	6,327,336

Total Sales Agreements

1950-2017: 18,361,405
2001-2017: 18,348,251
2010-2017: 13,648,505

Total Sales Deliveries

1950-2017: 10,678,238
2001-2017: 10,665,085
2010-2017: 9,085,119

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of September 30, 2017, http://www.dsca.osd.mil/.

F. Recent U.S. Arms Sales Under President Trump

F. Recent U.S. Arms Sales Under President Trump

The size of U.S. arms sales to Saudi Arabia and the Arab Gulf states since President trump took office has become the subject of significant controversy for reasons that go far beyond the massive mistakes the U.S. is making in assessing the burden sharing efforts of its Arab strategic partners. President Trump has placed a heavy emphasis on U.S. arms sales to Saudi Arabia and other Arab Gulf states since he took office. While politics are politics and exaggerated claims are the primary bipartisan rule of political truth, he also has sharply exaggerated the size of U.S. sales, the growth in such sales since he took office, and their impact on creating jobs.

Claimed versus Real Sales Data

In fairness, various Presidents from both parties have exaggerated the value of arms sales ever since the U.S. debate over the sale of the AWACS to Saudi Arabia that began in 1981. Nevertheless, President Trump has pushed such claims to unusual levels.

He first took take credit for such sales proposals in a meeting with Mohammed Bin Salman, the Crown Prince of Saudi Arabia, on March 20, 2018.

He displayed two poster boards during televised coverage of the meeting. One claimed $12.5 billion in "finalized" arms sales to Saudi Arabia, including $3 billion worth of Standoff Attack missile sales, $533 million in CH47 sales, $533 million in Threat Detection Aerostats, $880 million in M1 tank upgrades, $63 million in artillery shells, $889 million worth of Harpoon II missiles, $6 billion worth of MMSC frigates, and $645 million worth of Joint Standoff missiles.

The second showed "sales pending" and included $13 billion worth of THAAD ABMs, $3.8 billion worth of C-130s, $1.4 billion worth of Poseidon MPA/AWACS aircraft, and $1.2billion worth of Bradley armored fighting vehicles. In displaying these sales , the President took credit for creating 40,000 jobs and some $19.4 billion in deals, although almost all had been planned or negotiated by President Barack Obama and were not firm sales.

Many of the problems with these claims were summarized in an article by Glenn Kessler in the *Washington Post* on October 22, 2018. (https://www.washingtonpost.com/politics/2018/10/22/trumps-claim-jobs-saudi-deals-grows-by-leaps-bounds/?utm_term=.440c2b1b7226).

Kessler noted that,

> The White House never provided an accounting of how the 40,000-jobs figure was determined, so we are dubious that it's a reliable number. But even if we were to generously apply that same metric to $110 billion — one job for every $485,000

spent — you end up with only about 225,000 jobs... Trump on March 20 mentioned THAAD — the Terminal High Altitude Area Defense anti-ballistic missile system. The Saudis let a September deadline for the deal with Lockheed Martin lapse, despite a 20 percent price cut given by Trump. So, for now, he cannot even count on the THAAD, which was one of the biggest elements of the $110 billion wish list.

He also reported that the President then made a series of steadily escalating claims about both the value of such sales and the number of jobs they created -- virtually ignoring the relative importance of any sale in enhancing Saudi and U.S. security, ignoring every aspect of the burden military spending placed on Saudi ability to implement the civil reform plans essential to its stability and fight against extremism, and ignoring the fact his figures bore no linkage to the number of new sales actually being reported to Congress:

- *"It's $110 billion. I believe it's the largest order ever made. It's 450,000 jobs. It's the best equipment in the world."* **— President Trump, in remarks to reporters, Oct. 13, 2018**

- *"$110 billion in purchasing. It's 500,000 jobs, American jobs. Everything's made here."* **— Trump, in an interview with Trish Regan of Fox Business News, Oct. 16**

- *"Who are we hurting? It's 500,000 jobs. It'll be ultimately $110 billion. It's the biggest order in the history of our country from an outside military."* **— Trump, in an interview with Stuart Varney of Fox Business News, Oct. 17**

- *"I would prefer that we don't use, as retribution, canceling $110 billion worth of work, which means 600,000 jobs."* **— Trump, during a defense roundtable at Luke Air Force Base, Oct. 19**

- *"So now if you're talking about — that was $110 billion — you know, you're talking about over a million jobs. You know, I'd rather keep the million jobs, and I'd rather find another solution."* **-- — Trump, in additional remarks to reporters after the roundtable, Oct. 19**

... To be fair, he appeared to be saying that all of the deals he struck in Saudi Arabia — which he valued at $450 billion — would create 1 million jobs. But that's just as fanciful. (We had earlier documented that the commercial agreements announced after his 2017 trip to the kingdom were mostly smoke and mirrors, with many of the purported deals aimed at creating jobs in Saudi Arabia, not the United States. At the time, Trump claimed they were worth $350 billion.)

... the official White House statement said when the deal was signed: "This package demonstrates the United States' commitment to our partnership with Saudi Arabia, while also expanding opportunities for American companies in the

region, potentially supporting tens of thousands of new jobs in the United States... According to a confidential 2017 document of all of the military sales agreements reviewed by The Fact Checker, most of the items on Trump's $110 billion list did not have delivery dates or were scheduled for 2022 or beyond. There appeared to be few, if any, signed contracts. Rather, many of the announcements were MOIs — memorandums of intent. There were six specific items, adding up to $28 billion, but all had been previously notified to Congress by the Obama administration.

Moreover, the Aerospace Industries Association says that in 2016, there were 355,500 manufacturing jobs supported by the entire defense and national security industry, generating $146 billion in annual exports. So it's hard to imagine that $110 billion in deals with Saudi Arabia, spread over a decade, would significantly add to that total, let alone more than double it. For context, the U.S. economy is worth about $20 trillion a year.

"Tens of thousands" is much, much lower than 600,000. Even that might be a stretch, though note that the statement uses the phrase "potentially supporting," rather than "creating," jobs. That means the White House could have been counting not just new factory workers but also secondary jobs resulting from the "feedback" of employed defense workers. (In theory, each dollar spent by a newly employed person reverberates through the economy, creating jobs for dentists, librarians, bread bakers, farmers, bartenders and so forth.)

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If anything, Kessler understates the exaggerations involved regarding job creation, many of which can scarcely be blamed upon the President. The Office of the Secretary of Defense has meaningful factual support for most of the dollar to job estimates it issues, and the actual number of jobs per sales dollar steadily declines over time as high technology equipment comes to rely more and more on highly skilled labor, robotics, and other forms of automation.

A Real-World Sales Chronology

As for actual sales, **Figure F-1** provides an official sale-by-sale chronology – taken from the reporting by the Defense Security Cooperation Agency (DSCA) of the Department of Defense of the proposed (not final) arms sales to all of the Arab Gulf states, including Iraq, from the date of the President's inauguration through December 1, 2018 – a period that covers all the claims listed by Kessler.

Even if one counts all of these proposed sales as actual sales and ignores the fact most were proposed under President Obama, the totals were only $26.9 billion in 2017 and $5.8 billion in 2018, for a total of $32.8 billion. The portion of these sales that would be made to Saudi Arabia would be far more limited: $20.1 billion.

The good news is that some of the potential sales listed in **Figure F1** do reflect an emphasis on key missions like air and ballistic missile defense, on fully supporting advanced multirole fighters, and some limited emphasis on forces that can counter Iran's asymmetric naval threats. The overall patterns in Arab Gulf arms buys do reflect a shift towards buys that can increase true operational interoperability, create more effective warfighting cooperation with U.S. power projection forces, and emphasize deterrent and warfighting capabilities rather than prestige buys and the military "glitter factor."

Figure F1 also shows, however, that the total size of recent U.S. arms sales is not, however, anywhere near $100 billion to $125 billion. These numbers bear no clear relation to reality. Furthermore, the data in **Figure F1** show that even if one disregards the fact DSCA reports proposed – not actual – U.S. arms sales, and that the totals in the Figure include also reported sales that have occurred since President Trump's Inauguration – even though most such sales were proposed before President Trump took office – the totals were only $26.9 billion in 2017 and $5.8 billion in 2018, for a total of $32.8 billion.

So far, only about half these total sales to all Arab Gulf states seem likely to be final. The Saudi portion also totaled $17.2 billion in 2017 and $2.9 billion in 2018, for a total of $20.1billion. These are still massive potential purchases, but they fall far short of some political claims.

How DSCA Sales are Reported

The DSCA provides the kind of transaction by transaction reporting that is critical to transparency in evaluating arms transfers and sets a precedent that every seller and buyer country should follow. There is no way to keep major arms transfers secret from other governments and potential threats. They inevitably lead long before the full transfer takes place and the buyer country can effectively absorb the equipment.

The DCSA not only reports the total value of actual arms sales by year it reports proposed arms sales by major transfer, sale, or military activity by month – generally with a lag of only a few days. These reports are available at http://www.dsca.mil/major-arms-sales, and provide a broad description of each sale as well as a estimate of its cost. These data go back to 2008, and earlier in some cases. It should be stressed, however, that they are reports on possible sales where the request has been approved by the U.S. State Department – not actual sales or actual expenditures. It is clear from reviewing these reports that the actual sale often changes significantly or does not occur – at least in the originally request form. While there is no way to confirm this, the descriptions of some sales also seem to be written in ways to preserve the security of potentially sensitive information.

The DSCA summarizes the nature of the reporting requirements for such sales for all countries except NATO countries as any sale of major defense equipment over $14 million, any other articles or services over $50 million, and construction over $200 million. Its instructions to users that: ((http://www.dsca.mil/foreign-customer-guide/fms-what-happens-first)

> We will review the request to determine if there are any releasability issues: Part of the USG review process involves determining if the technology involved is releasable for export. The releasability review takes place for both government-to-government FMS and for DCS that are directly negotiated between your country and a specific U.S. manufacturer. If the sale involves a system with technology that has not been previously approved for export to your country, this process will generally take longer than if the system has previously been reviewed and approved for export to your country. The DoD reviews each proposed sale or transfer of defense items or services and then provides a recommendation to the DoS. Only the DoS - not the DoD - has authority under U.S. law to approve the sale or transfer to a foreign country. Because there can be so many variables involved, it is often difficult to estimate with accuracy the amount of time a technology release review will take but, generally speaking, if sensitive technologies are involved, the sooner you can begin a dialogue with the Implementing Agency, the better.
>
> We will notify the U.S. Congress, if necessary: If a potential sale exceeds certain dollar thresholds, U.S. law requires that the sale be approved by the U.S. Congress prior to the USG offering an LOA to the requesting country.
>
> MDE means any item in the International Traffic in Arms Regulation (ITAR) on the U.S. Munitions List (USML) that:
>
> - Warrants special export controls (we call these items Significant Military Equipment (SME)) and mark them with an asterisk in the USML; and
> - Has a nonrecurring Research and Development cost of $50 million or more or a total production cost of $200 million or more.
>
> …The formal Congressional Notification period is 30 days (15 days for NATO (+5)), meaning that if no Congressional objection is raised prior to expiration of the 30-day period the sale may go forward. This does not include the time Implementing Agency and DSCA take to prepare the notification and coordinate it with the DoS. Lastly, in order for formal notification to occur, Congress (both the House and the Senate) must be in session for at least one day during the formal notification period. The SAMM provides a more thorough discussion of Congressional notification requirements and process at SAMM Section C5.5. (http://www.dsca.mil/foreign-customer-guide/fms-what-happens-**first)**

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - I

(January 20, 2017- December 1, 2018)

2017-2018: Total = $32,797.25 million. Sales to Saudi Arabia = $20,073.8 million

2018: Total = $5,849.8 million. Sales to Saudi Arabia = $2,886.8 million

- **November 27, 2018: Qatar -- Direct Commercial Sale of the National Advanced Surface to Air Missile System (NASAMS).** The items Qatar requests include the following: forty (40) AIM 120C-7 AMRAAM missiles, one (1) spare AIM 120C-7 AMRAAM guidance section, one (1) spare AIM-120C-7 control section, eight (8) AMRAAM Captive Air Training Missile (CATM-120C), missile containers, classified software for the AN/MPQ-64F1 Sentinel Radar, spare and repair parts, cryptographic and communication security devices, precision navigation equipment, other software, site surveys, weapons system equipment and computer software support, publications and technical documentation, common munitions and test equipment, repair and return services and equipment, personnel training and training equipment, integration support and test equipment, and U.S. Government and contractor, engineering, technical and logistics support services, and other related elements of logistical and program support: **$215 million**.
- **October 4, 2018: Iraq -- five (5) Armed Bell 407GX helicopters** configured with five (5) M240 7.62mm Machine Guns. Also included are five (5) RF-7850A Secure Communications Radios, five (5) AN/AAR-60 MILDS Automatic Plume Detectors, five (5) AN/ALE-47 Airborne Countermeasure Dispensing Systems, five (5) M3P .50 Caliber Machine Guns, five (5) M260 Rocket Launchers (APKWS Configuration), five (5) MX-15Di EO/IR Sensors, five (5) GAU-19 .50 Caliber Machine Guns, five (5) Pathfinder Mission Management Systems, five (5) ARES Weapon Management Systems, five (5) Mission Configurable Armament Systems (MCAS), night vision compatible lighting systems, aircraft intercommunications systems (ICS), cockpit and seat armor kits, and bifurcated exhaust infrared suppressor systems, operating manuals, spare parts, maintenance and operator training for radio systems, technical and logistics support services, and other related elements of logistical and program support.: **$82.5 million**.
- **September 28, 2018: Bahrain -- Guided Multiple Launch Rocket System Unitary Rocket Pods and Army Tactical Missiles System (ATACMS) Unitary missiles -- one hundred twenty (120) Guided Multiple Launch Rocket System (GMLRS) M31 Unitary Rocket Pods (six (6) rockets per pod for a total of seven hundred twenty (720); and one hundred ten (110) Army Tactical Missiles System (ATACMS) M57 T2K Unitary missiles**. Also included are publications, personnel training and training equipment, software development, U.S. Government and contractor engineering, technical and logistics support services; and other related elements of logistical and program support: **$300 million**.
- **August 2, 2018: Kuwait -- Various Mk- series munitions -- one thousand twenty (1,020) Mk-82 500 lb. bombs, one thousand two (1,002) Mk-83 1000 lb. bombs and six hundred (600) Mk-84 2000 lb. bombs**. Also included in the sale are general purpose bomb components and fuzes, support and test equipment, publications and technical documentation, personnel training and training equipment, transportation, facilities and construction, U.S. Government and contractor technical and logistics support services, and other related elements of logistic and program support: **$40.4 million**.
- **July 30, 2018: Bahrain -- Twenty-eight (28) TOW Improved Target Acquisition Systems (ITAS) and four (4) TOW Improved Target Acquisition System (ITAS) Floats**. Also included are support equipment, government-furnished equipment, technical manuals/publications, spare parts, tool and test equipment, training**: $80 million**

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - II

(January 20, 2017- December 1, 2018)

July 30, 2018: Kuwait -- Three hundred (300) AGM-114R Hellfire missiles, one (1) Warhead Section Assembly and one (1) Rocket Motor. Also included in the sale are missile containers, nineteen (19) M261 2.75 tube rocket launchers, spare and repair parts, repair tools, personnel training, U.S. Government and contractor engineering, technical and logistical support services and other related elements of logistical and program support: **$30.4 million**.

July 26, 2018 : Bahrain -- Follow-On Technical Support (FOTS) for the Royal Bahrain Navy Ship SABHA (FFG-90), formerly the USS Jack Williams (FFG-24), transferred as Excess Defense Article on September 13, 1996. Also includes engineering, technical, and logistics services, documentation, and modification material for U.S. Navy supplied systems and equipment and other related elements of logistics and program support: **$70 million,**

May 18, 2018: Bahrain -- three thousand two hundred (3,200) General Purpose (GP) and Penetrator Warhead bomb bodies to include: one thousand five hundred (1,500) MK-82 (500lbs) GP bomb bodies, six hundred (600) MK-83 (1,000lbs) GP bomb bodies, six hundred (600) MK-84 (2,000lbs) GP bomb bodies, and five hundred (500) BLU-109 (2,000lbs) Penetrator Warhead bomb bodies. Also included are spares and repair parts, support equipment, personnel training and training equipment, shipping and logistics services, publications and technical documentation, U.S. Government and contractor technical support services, containers, munitions components, test equipment, and other related elements of logistics and program support: **$45 million**

April 27, 2018: Bahrain -- twelve (12) AH-1Z attack helicopters, twenty-six (26) T-700 GE 401C engines (twenty-four (24) installed and two (2) spares), fourteen (14) AGM-114 Hellfire Missiles, and fifty-six (56) Advance Precision Kill Weapon System II (APKWS-II) WGU-59Bs. This request also includes fifteen (15) Honeywell Embedded Global Positioning System (GPS) Inertial Navigation System (INS) (EGI) w/Standard Positioning Service (SPS) (including three (3) spares), twelve (12) Joint Mission Planning Systems, twelve (12) M197 20mm gun systems, thirty (30) Tech Refresh Mission Computers, fourteen (14) AN/AAQ-30 Target Sight Systems, twenty six (26) Helmet Mounted Display/Optimized Top Owl, communication equipment, electronic warfare systems, fifteen (15) APX-117 Identification Friend or Foe (IFF), fifteen (15) AN/AAR-47 Missile Warning Systems, fifteen (15) AN/ALE-47 Countermeasure Dispenser Sets, fifteen (15) APR-39C(V)2 Radar Warning Receivers, support equipment, spare engine containers, spare and repair parts, 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 and program support: **$911.4 million**

April 9, 2018: Qatar --Five thousand (5,000) Advanced Precision Kill Weapon Systems (APKWS) II Guidance Sections. Also included are five thousand (5,000) MK66-4 2.75 inch rocket motors, five thousand (5,000) high explosive warheads for airborne 2.75 inch rockets, inert MK66-4 2.75 inch rocket motors, inert high explosive warhead for airborne 2.75 inch rockets, support equipment, spares, training, publications, engineering technical assistance, program management technical assistance, logistics support services, and other related elements of program support: **$300 million**.

April 5, 2018: Saudi Arabia -- One hundred and eighty (180) 155mm M109A5/A6 Medium Self-Propelled Howitzer structures for conversion to one hundred and seventy-seven (177) 155mm M109A6 Paladin Medium Self-Propelled Howitzer systems; three (3) Fire Support Combined Arms Tactical Trainers (FSCATT) static training devices; one hundred and eighty (180) M2 HB .50 Cal Machine Guns; and eight (8) Advanced Field Artillery Tactical Data Systems (AFATDS). Also included are M109A5/A6 overhaul, conversion and refurbishment services; Special Tools and Test

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - III

(January 20, 2017- December 1, 2018)

Equipment; Basic Issue Items (BII); Driver's Vision Enhancer (DVE) Wide system; Program Management Support; Verification Testing; System Technical Support; Transportation; spare and repair parts; communications equipment; personnel training and training equipment; tool and test equipment; repair and return; publications and technical documentation; Quality Assurance Team (QAT); U.S. Government and contractor engineering; technical and logistics support services; and other related elements of logistics and program support: **$1.31 billion.**

March 22, 2018: Saudi Arabia -- Up to six thousand six hundred (6,600) TOW 2B missiles (BGM-71F-Series) and ninety-six (96) TOW 2B (BGM-71F-Series) fly-to-buy lot validation missiles. Also included is government furnished equipment; technical manuals and publications; essential spares and repair parts; consumables; live fire exercise and ammunition; tools and test equipment; training; transportation; U.S. Government technical support and logistic support; contractor technical support; repair and return support; quality assurance teams; in-country Field Service Representative (FSR); other associated equipment and services in support of TOW 2B missiles; and other related elements of logistics and program support: **$670 million**

March 22, 2018: Saudi Arabia -- Purchase of a new Royal Saudi Land Forces Ordnance Corps Foreign Military Sales Order (FMSO) II to provide funds for blanket order requisitions under a Cooperative Logistics Supply Support Agreement (CLSSA) for common spares/repair parts to support Saudi Arabia's fleet of M1A2 Abrams tanks, M2 Bradley Fighting Vehicles, High Mobility Multipurpose Wheeled Vehicles (HMMWVs), Light Armored Vehicles (LAVs), M198 Towed Howitzers, additional support, and other related elements of logistics and program support: **$300 million**

March 22, 2018: Saudi Arabia -- Equipment and services for the continuation of the Maintenance Support Services (MSS) contract that supports the Royal Saudi Land Forces Aviation fleet of AH-64D/E, UH-60L, Schweizer 333 and Bell 406CS helicopters. The MSS contract services includes management and installation of engineering change proposals and modification work orders; Repair and Return (R&R) management services and component repairs; aircraft simulator logistics, maintenance and technical support; training; and maintenance management support for the RSLFAC Headquarters staff; and other related elements of logistics and program support: **$106.8 million**

March 8, 2018: UAE -- Sale of three hundred (300) AIM-9X-2 Sidewinder Block II missiles, forty (40) AIM-9X-2 Sidewinder Captive Air Training Missiles (CATMs), thirty (30) AIM-9X-2 Block II Tactical guidance units, fifteen (15) AIM-9X-2 CATM guidance units, containers, spares, support equipment and missile support, U.S. Government and contractor technical assistance and other related logistics support, and other associated support equipment and services: **$270.4 million**.

March 8, 2018: Qatar -- Purchase equipment and support to upgrade the Qatari Emiri Air Force's (QEAF) Air Operation Center (AOC) to enhance the performance of integrated air defense planning and provide US-Qatari systems interoperability. This sale includes: one (1) Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), Global Positioning System (GPS) Selective Availability Anti-Spoofing Module (SAASM) chips, Simple Key Loaders (SKL), High Assurance Internet Protocol Encryptors (HAIPE), Ground Support System (GSS) components for Link-16 as well as the necessary infrastructure construction, integration, installation, and sustainment services, cybersecurity services, technical and support facilities, COMSEC support, secure communications equipment, encryption devices, software development, spare and repair parts, support and test equipment, publications and technical documentation, security certification and accreditation, personnel training and training equipment, U.S. Government and contractor engineering, technical and logistics support services; and other related elements of logistical and program support**: $197 million**.

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - IV

(January 20, 2017- December 1, 2018)

- **February 21, 2018: Kuwait -- King Air 350ER Intelligence, Surveillance, and Reconnaissance (ISR) aircraf**t - sale of four (4) King Air 350ER Intelligence, Surveillance, and Reconnaissance (ISR) aircraft with enhanced PT6A-67A engines and one (1) engine spare; four (4) AN/AAQ-35 WESCAM MX-15HDi Electro-Optical & Infrared Imaging Sensor Turret; four (4) Selex Seaspray 7500E Active Electronically Scanned Array Radars (AESA); AN/AAR-47 Missile Warning Systems (MWS); AN/ALE-47 Countermeasure Dispenser Systems; secure communications, cryptographic, and precision navigation equipment; Identification Friend or Foe (IFF) Systems; aircraft modification and integration for ISR mission systems; facility design and construction; ground data processing systems and support equipment; spares and repair parts; support and test equipment; simulators, training and training equipment; publications and technical documentation; U.S. Government and contractor engineering, technical and logistics support services; and other related elements of logistical and program support. Additionally, one of the four aircraft will be further modified to accommodate VIP/senior leadership personnel for transport and Med Evac capability or command and control, and other related elements of logistical support: **$259 million.**
- **February 20, 2018: Kuwait -- Purchase fifteen (15) fast patrol boats** outfitted with thirty-six (36) .50 caliber machine guns (thirty (30) installed, two (2) per boat and six (6) spares). This request also includes support equipment, personnel training and training equipment, U.S. Government and contractor engineering, technical and logistics support services, and other related elements of logistical and program support: **$100 million.**
- **January 17, 2018: Saudi Arabia -- Continued participation, technical assistance, and support in the Patriot Legacy** Field Surveillance Program (FSP); the Patriot Advanced Capability 3 (PAC-3) FSP; and the Patriot Engineering Services Program (ESP). Also included are Patriot and HAWK Missile System spare parts and repair and return management services and component repairs, and other related elements of logistics and program support: $500 million
- **January 5, 2018: Oman -- Operational Flight Profile (OFP) software upgrade for F-16 subsystems**, as well as Identification Friend or Foe (IFF) and secure communications equipment for Mode 5 operations on twenty-three (23) F-16 aircraft. Non-MDE items and services consist of twenty-nine (29) KIV-78 cryptographic/timing modules (twenty-three (23) installed and six (6) spares); twenty-nine (29) KY-100M cryptographic radio encryptors (twenty-three (23) installed and six (6) spares); twenty-nine (29) AN/APX-126 Combined Interrogator Transponders (twenty-three (23) installed and six (6) spares); Classified and Unclassified Computer Program Identification Numbers (CPINS) upgrades; OFP upgrades for IFF Mode 5 capable systems, Joint Mission Planning (JMPS) upgrade; Sniper Advanced Targeting Pod software, service support, support equipment, spares, and training; systems support and test equipment; spare and repair parts; publications and technical documentation; training and training equipment; U.S. Government and contractor engineering; logistics and technical support services; and other related elements of logistics and program support: **$62 million.**

2017: Total = $26,947.45 million. Sales to Saudi Arabia = $17,187 million

November 1, 2017: Qatar -- support of its F-15QA multi-role fighter aircraft program to include design and construction services, new parking/loading ramps, hot cargo pads, taxiways, hangars, back shops, alert facilities, weapons storage areas, hardened shelters, squadron operations facilities, maintenance facilities, training facilities, information technology support and cyber facilities, force protection support facilities, squadron operations facilities, other F-15QA related support structures, construction/facilities/design services, cybersecurity services, mission critical computer resources, support services, force protection services, and other related elements of logistics and program support: **$1.1 billion**.

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - V

(January 20, 2017- December 1, 2018)

- **October 16, 2-17: Kuwait -- Sale of two hundred eighteen (218) M1A1 Abrams tank hulls with 120mm cannons** and two hundred eighteen (218) AGT-1500 (M1 Tank Series) engines in support of its M1A2 tank recapitalization. Also included are transportation and other logistics support: **$29 million**.
- **October 13, 2017: Kuwait -- three years (with option for two additional years) of follow-on support of two (2) C-17 aircraft**, which includes participation in the Globemaster III Integrated Sustainment Program (GISP), contract logistic support, Class I modifications and kits support, in-country contractor support, alternate mission equipment, major modification and retrofit, software support, aircraft maintenance and technical support, support equipment, personnel training and training equipment, additional spare and repair parts, technical orders and publications, airworthiness certification support, engine spares, engine maintenance and logistics support, inspections support, on-site COMSEC support, Quality Assurance and other U.S. Government and contractor engineering, logistics, and program support. Required upgrades will include fixed installation satellite antenna, Mode 5, plus installation and sustainment, Automatic Dependent Surveillance-Broadcast Out, and other related elements of logistics and program support: **$342.6 million**.
- **October 6, 2017: Saudi Arabia -- sale of forty-four (44) Terminal High Altitude Area Defense (THAAD) launchers, three hundred sixty (360) THAAD Interceptor Missiles, sixteen (16) THAAD Fire Control and Communications Mobile Tactical Station Group, seven (7) AN/TPY-2 THAAD radars**. Also included are THAAD Battery maintenance equipment, forty-three (43) 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, facilities construction, studies, and other related elements of logistics and program support: **$15 billion**.
- **September 8, 2017: Bahrain -- Purchase of two (2) 35 meter Fast Patrol Boats**, each equipped with one (1) MK38 Mod 3 25mm gun weapon system and one (1) SeaFLIR 380 HD Forward Looking Infra-Red (FLIR) device. Additionally, Bahrain has requested communication equipment; support equipment; spare and repair parts; tools and test equipment; technical data and publications; personnel training; U.S. government and contractor engineering, technical, and logistics support services; and other related elements of logistics and program support: **$60.25 million**.
- **September 8, 2017: Bahrain -- 19 F-16V aircraft with support -- sale of nineteen (19) F-16V Aircraft;** nineteen (19) M61 Vulcan 20mm Gun Systems; twenty-two (22) F-16V F-110-GE-129 Engines (includes 3 spares); twenty-two (22) APG-83 Active Electronically Scanned Array Radars (includes 3 spares); twenty-two (22) Modular Mission Computers (includes 3 spares); twenty-two (22) Embedded Global Navigation Systems/LN260 EGI (includes 3 spares); twenty-two (22) Improved Programmable Display Generators (iPDG) (includes 3 spares); and thirty-eight (38) LAU-129 Launchers. This sale also includes nineteen (19) AN/ALQ-211 AIDEWS Systems, thirty-eight (38) LAU-118A Launchers, forty-two (42) AN/ARC-238 SINCGARS Radio or equivalent, twenty-two (22) AN/APX-126 Advanced Identification Friend or Foe (AIFF) system or equivalent, twenty-two (22) cryptographic appliques, secure communication equipment, spares and repair parts, personnel training and training equipment, simulators, publications and technical documentation, U.S. Government and contractor technical support services, containers, missile support and test equipment, original equipment manufacturer integration and test, U.S. Government and contractor technical support and training services, site survey, design, construction studies/analysis/services, associated operations/maintenance/ training/support facilities, cybersecurity, critical computer resources support, force protection and other related elements of logistics and program support: **$2.785 billion**.

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - VI

(January 20, 2017- December 1, 2018)

September 8, 2017: Bahrain -- Upgrade of 20 F-16 Block 40 aircraft to F-16V configuration -- upgrade its existing twenty (20) F-16 Block 40 aircraft to the F-16V configuration. The requested sale comprises of twenty-three (23) F-110-GE-129 engines (includes 3 spares); twenty-three (23) APG-83 Active Electronically Scanned Array Radars (includes 3 spares); twenty-three (23) Modular Mission Computers (includes 3 spares); twenty-three (23) Embedded Global Navigation Systems/LN260 EGI (includes 3 spares); twenty-three (23) Improved Programmable Display Generators (iPDGs) (includes 3 spares); forty (40) LAU-129 launchers; twenty-five (25) AN/AAQ-33 SNIPER Pods; two (2) AIM-9X Sidewinder Missiles; two (2) AGM-88 High-speed Anti-Radiation Missiles (HARM); two (2) WGU-43 Guidance Control Unit (GBU) Guidance Control Unit (GCU) (for GBU-24 Paveway III); two (2) BSU-84 Air Foil Group (AFG) (for GBU-24 Paveway III); five (5) KMU-572 Joint Direct Attack Munition (JDAM) Tailkits (for GBU-38 JDAM and GBU-54 Laser JDAM); two (2) GBU-39 Small Diameter Bombs (SDB) Guided Test Vehicles (GTV); two (2) AGM-84 Harpoon Exercise Missiles; three (3) MAU-210 ECCG (for GBU-50 Enhanced Paveway II); three (3) BLU-109 Inert Bomb Bodies; four (4) MK-82/BLU-111 Inert Bomb Bodies; and two (2) GMU-152 or FMU-139 Fuzes.

This sale also includes one (1) Joint Mission Planning System, one (1) F-16V simulator, twenty (20) AN/ALQ-211 AIDEWS Systems, one (1) avionics level test station, six (6) DB-110 Advanced Reconnaissance Systems, two (2) LAU-118A Launchers, forty-five (45) AN/ARC-238 SINCGARS Radio or equivalent, twenty-three (23) Advanced Identification Friend or Foe (AIFF) systems or equivalent; twenty-three (23) cryptographic appliques; two (2) CATM-9L/M, two (2) AIM-120C-7 Advanced Medium Range Air-to-Air Missile (AMRAAM) Captive Air Training Missiles (CATM), three (3) MXU-651 AFG (for GBU-50 Enhanced Paveway II), four (4) DSU-38 Precision Laser Guidance sets (PLGS) (for GBU-54 Laser JDAM), four (4) AGM-154 Joint Stand-Off Weapon (JSOW) Captive Flight Vehicles (CFV), three (3) MK-84/BLU-117 Inert Bomb Bodies, two (2) FMU-152 D-1 Inert Fuzes, three (3) BRU-57 Bomb Racks, two (2) BRU-61 Bomb Racks for SDB, two (2) ADU-890 SDB adapter cable for CMBRE, two (2) ADU-891 AMRAAM/AIM-9X adapter cable for CMBRE, Telemetry for all flight test assets secure communication equipment, spares and repair parts, support equipment, personnel training and training equipment, publications and technical documentation, U.S. Government and contractor technical support services, containers, missile support and test equipment, integration test, site survey, design, construction studies/analyses/services, associate operations, maintenance, training, support facilities, cybersecurity, critical computer resources support, force protection, and other related elements of logistics and program support: **$1.082 billion**.

September 8, 2017: Bahrain -- One-hundred and seven (107) TOW 2A, Radio Frequency (RF) Missiles (BGM-71-4B-RF) -- One-hundred and seven (107) TOW 2A, Radio Frequency (RF) Missiles (BGM-71-4B-RF). Seventy-seven (77) TOW 2B Aero, RF Missiles (BGM-71F-Series). Thirty-seven (37) TOW Bunker Buster (BB), RF Missiles (BGM-71-Fl-RF) Non-MDE: The request also includes the following Non-MDE: Government Technical Support/Logistical Support, Contractor Technical Support, and other associated equipment and services: **$27 million**.

August 1, 2017: Iraq -- Follow-On Technical Support (FOTS) for U.S. origin Navy vessels and a ship repair facility -- sale of Follow-On Technical Support (FOTS) for various U.S.-origin Navy vessels and a ship repair facility in Iraq to include procurement of spare and repair parts, support and test equipment, publications and technical documentation, personnel training equipment, engineering and logistics support services, and other related elements of logistics and program support: **$150 million**

June 5, 2017: Saudi Arabia -- Twenty-six (26) AN/TPQ-53(V) Radar Systems to include Solid State Phased Array Radar with KN-4083 Selective Availability Anti-Spoofing Module (SAASM) enhanced Land/Sea Inertial Navigation System (INS) and automatic leveling system; Eight hundred and forty (840), M931, 120mm Projectiles with M781 fuzes (for live fire exercise); Two thousand, two hundred and forty (2,240), M107, 155MM Projectiles with M557 fuzes (for live fire exercise); Single Channel Ground and Airborne Radio Systems (SINCGARS) and accessories; Defense Advanced Global Positioning System (GPS) Receiver (DAGR) equipment and accessories; Miltope laptops and accessories; Medium Tactical Vehicles FMTV M1092 5-ton trucks/chassis with support and accessories; software support : **$662 million**

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

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- **June 5, 2017: Saudi Arabia -- Continued blanket order training program inside and outside of the Kingdom of Saudi Arabia** that includes, but is not limited to, flight training, technical training, professional military education, specialized training, mobile training teams (MTTs), and English language training. These blanket order training cases cover all relevant types of training offered by or contracted through the U.S. Air Force or Department of Defense (DoD) Agencies, to include participation in CONUS DOD-sponsored education, as well as MTTs that will travel to Saudi Arabia. Program management, trainers, simulators, travel, billeting, and medical support may also be included: **$750 million**.
- **June 5, 2017: Saudi Arabia -- Continuation of a naval blanket order training program inside and outside of Saudi Arabia** that includes, but is not limited to English Language training, professional military education, technical training, publications and technical documentation, U.S. Government and contractor engineering, technical and logistics support services, and other related elements of logistical and program support: **$250 million**.
- **May 11, 2017: UAE -- sixty (60) Patriot Advanced Capability 3 (PAC-3)** missiles with canisters and one hundred (100) Patriot Guidance Enhanced Missile-Tactical (GEM-T) missiles. Also included are canisters, tools and test equipment, support equipment, publications and technical documentation, spare and repair parts, U.S. Government and contractor technical, engineering and logistics support services, and other related elements of logistics and program support: **$2 billion**.
- **April 19, 2017: Iraq -- Equipment necessary to outfit two artillery battalions** that will ultimately provide support to those regional brigades. These artillery battalions and infantry brigades will operate under the Kurdistan Regional Governments Ministry of Peshmerga (KRG MOP) with the concurrence of the central government. Requested equipment includes the following: (4,400) M16A4 rifles; (46) M2 50 caliber machine guns; (186) M240B machine guns; (36) M1151 HMMWVs; (77) M1151 up-armored HMMWVs; (12) 3 Kilowatt Tactical Quiet Generator sets; body armor, helmets, and other Organization Clothing and Individual Equipment (OCIE); small arms and associated accessories including tripods, cleaning kits, magazines, and mounts; mortar systems and associated equipment; Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) detection and protective equipment; dismounted and mounted radio systems; commercial navigation equipment including compasses, binoculars, and Geospatial Position System (GPS) limited to the Standard Positioning System (SPS); M1142 HMMWVs; medical equipment; Mine Resistant Ambush Protected Vehicles (MRAP); cargo and transportation equipment, including light tactical vehicles, medium tactical vehicles, water trucks, fuel trucks, and ambulances; (36) refurbished M119A2 105mm howitzers; spare parts, training and associated equipment related to the mentioned vehicles and artillery systems: **$295.6 million**.
- **April 12, 2017: Iraq -- Pilot training; maintenance training; and contractor logistical services support for C-172, C-208, and T-6 aircraft** for up to five (5) years to include contractor aircraft modification; repair and spare parts; publications; aircraft ferry; and miscellaneous parts, along with training base operation support, base life support, security, construction, and other related elements of program support: **$1.06 billion**.
- **April 6, 20-17: Kuwait -- Design, construction, and procurement of key airfield operations, command and control, readiness, sustainment, and life support facilities for the Al Mubarak Airbase in Kuwait**. The U.S. Army Corps of Engineers (USACE) will provide project management, engineering services, technical support, facility and infrastructure assessments, surveys, planning, programming, design, acquisition, contract administration, construction management, and other technical services for the construction of facilities and infrastructure for the airbase. The overall project includes, among other features, a main operations center, hangars, training facilities, barracks, warehouses, support facilities, and other infrastructure required for a fully functioning airbase: $**319 million**.

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

F1: Chronology of Major Gulf Arms Sales Approvals by State Department After President Trump was Inaugurated - VIII

(January 20, 2017- December 1, 2018)

- **January 23, 2017: Kuwait -- Support equipment and services for AH-64D Apache helicopters**, to include: Apache Maintainer unit support, Depot Level support, 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, United States Government and contractor engineering, technical, and logistics support services, and other related elements of logistics support: **$400 million**.
- **January 23, 2017: Kuwait -- sixty (60) AIM-120C-7 AMRAAM** Missiles including containers and other related services: **$110 million**
- **January 23, 2017: Saudi Arabia -- Ten (10) 74K Persistent Threat Detection System (PTDS) Aerostats**; fourteen (14) Ground Moving Target Indicator (GMTI) Radars; twenty-six (26) MX-20 Electro-Optic Infrared (EO/IR) Cameras; and ten (10) Communications Intelligence (COMINT) Sensors. Also included are the Mooring systems with powered tether with embedded fiber optics; Ground Control Systems (GCS); associated installation hardware; special tools and test equipment; Basic Issue Items (BII); program management support; verification testing; systems technical support: **$525 million**

Source: Department of Defense Security Cooperation Agency, Fiscal Year Series, As of October 2018, http://www.dsca.osd.mil/ and http://www.dsca.mil/major-arms-sales.

G. Force Numbers and Trends

Force Numbers and Trends

There is no easy way to tie the previous data in military expenditures and arms transfers to force numbers and trends. The forces that shape Gulf capabilities to fight a wide range of different types and levels of conflict are divided into five main components: Iran's forces, Iraq's forces, Southern Gulf Arab forces, U.S. forces, European forces, and other Arab Forces. China and Russia are both developing power projection capabilities but are not yet normally seen as part of the regional balance.

Conventional land forces are easiest to quantify and describe in terms of force trends. As has already been noted, the region has long been the scene of an ongoing arms race, shaped by various wars and crises, and that has accelerated in recent years. In broad terms, Iran is limited by both its economy and access to foreign weapons but has shaped an effective capability to fight asymmetric warfare and has growing missile forces and a nuclear option. Iraq has developed a range of effective counterinsurgency forces but is still recovering from its defeat in 2003 and years of civil war, has uncertain unity and political cohesion, and no clear force plans for the future. The Southern Arab Gulf states lead in modernization and weapons numbers, but their forces deeply divided, put "glitter" and weapons numbers before effective warfighting capability, and focus heavily on airpower with limited capability to deal with some aspects of Iran's asymmetric threats.

With the possible exception of Jordan, outside Arab powers seem no more likely to create any form of effective or unified Arab reinforcement than in the past. The possible exception is Syria, which might recover some capability to support Iraq is Iraq tilted towards Iran, or might be a source of pressure on Iraq if it aligned with other Arab states.

U.S. power projection forces are a different story. The forces the U.S. now deploys in the Gulf are now largely land-air forces shaped to fight ISIS in Iraq and Syria, joint naval and air forces designed to check Iran's naval and missile capabilities, and Gulf-based air forces that support air operations in Afghanistan. There is no easy way to quantify the massive additional power projection forces the U.S. can deploy, and which would vary sharply by scenario. However, major increases in U.S. military spending since FY2017 are steadily increasing every aspect of U.S. Power projection capabilities and seem likely to do so at least through FY2025. European power projection forces are also effective, and have high quality personnel, but have been seriously underfunded over an extended period. Their capabilities seem likely to keep dropping over time – almost regardless of given country's state defense plans.

The overall balance of conventional forces, however, is only part of the overall balance. While the military spending and arms transfers summarized in this analysis reveal major Gulf Arab superiority in the total resources being spent on the Arab-Iranian arms race, it should be noted that the recent history of the region has been driven largely by inter-Arab fighting and crises. The current war in Yemen, and Saudi-UAE led boycott of Qataris are cases in point, as are the tensions between Oman and Saudi Arabia.

There does seem to be real progress in military cooperation between Saudi Arabia and the UAE, but the two countries have differed sharply over some aspects of their operations in Yemen, and neither country has developed effective plans and mission capabilities to

deal with some aspects of Iran's asymmetric warfare capabilities without U.S. aid. In practice, the deeply divided South Arab Gulf forces would probably be as dependent on U.S. reinforcement and battle management in most scenarios in fighting Iran's conventional forces as they were in liberating Kuwait. Iran may dominate the most obvious military threat to the Arab Gulf states, but Arab disunity and dysfunctional military efforts are cooperation often mean they pose a threat to themselves.

Most importantly, the conventional balance is only part of the story. This balance now only affects the kind of wars no state is actually fighting. In contrast, Iran's asymmetric forces, and it use of the Al Quds and IRGC, other train and assist forces, arms transfer, cash payments, and volunteers has been highly effective in both political and military terms in Lebanon, Gaza, Syria, Iraq, and Yemen. Iran's mix of missile patrol boats, high explosive speed boats, smart mines that can be placed by any vessel, a wide variety of anti-ship missiles, submarines and submersibles, and arms transfers to non-state actors present b a major threat to all Gulf and nearby maritime traffic as well as a growing threat in the Gulf of Oman and Red Sea. Once again Iran has made strategic choices that offset many of the potential Arab Gulf advantages in military spending, arms transfers, and conventional forces shown in the following Figures

- ***G1: Iran and the Arab Gulf Balance in 2018*** provides a snapshot of the current conventional military balance, and the forces in each country that have been shaped by the military spending and arms transfers described in the previous sections. It does not reflect readiness, force modernization sustainability, and many other aspect of force quality, but force size does matter, and the Southern Arab Gulf states have a clear lead in major weapons numbers in most areas of conventional arms. Iraq is still a limited power, and Iran's only lead is in manpower. It should be noted that this figure draws on IISS sources and IHS Janes and other sources often have different figures.
- ***G2: Comparative Manpower*** provides a snapshot of total active, reserve, and paramilitary personnel. These totals are often used a comparative measures of military power, but few figures have been as consistently meaningless in all of military history. Quality, training, readiness, arms, and sustainability – along with tactics and strategy -- have dominated actual effectiveness. Gulf countries also tend to exaggerate their totals, report largely ineffective reserve forces, and rely on uncertain foreign elements. These forces which have real conscription programs also often provide limited real-world training and some exaggerate conscript intakes.
- ***G3: Iranian Military Forces: 1991-2017*** shows Iranian force trends in land and air forces from the period when Iran's forces began to recover from the Iran-Iraq War to the present. It did make a major recovery in some areas of major land force weapons numbers from 1991 to 2003 and beyond. Iran has not sought to make major increases in numbers since 2003 and has focused more on weapons quality. It has, however, retained a massive force of towed artillery and towed/SP rocket launchers. It has increased its air strength, but the numbers shown do not reflect fully operational or sustainable forces. It is clear from U.S. and other experts that Iran has modified many systems to keep them operational, but the quality of such efforts is highly uncertain. The same is true of many surface-to-air

- missile systems, and inventory age is a problem in ensuring some such systems remain operational and reliable.
- ***G4: Iranian Active Military Personnel*** shows the rise in Iranian force levels caused by the Iran-Iraq War, but the numbers shown are nominal and highly unreliable. Iran often reports totals that seem to be higher than actual levels. These figures do not include the full Basij personnel base which would add hundred of thousands of young men that could have some defense in depth capability or could be trained to play a more realistic military role over time over time. It should be stressed, however, that the fact that some of this manpower is exaggerated or has low grade training and readiness does not mean that Iran does not have highly effective units. Like Iran's Arab counterparts, its order of battle needs to be evaluated on a unit-by-unit basis.

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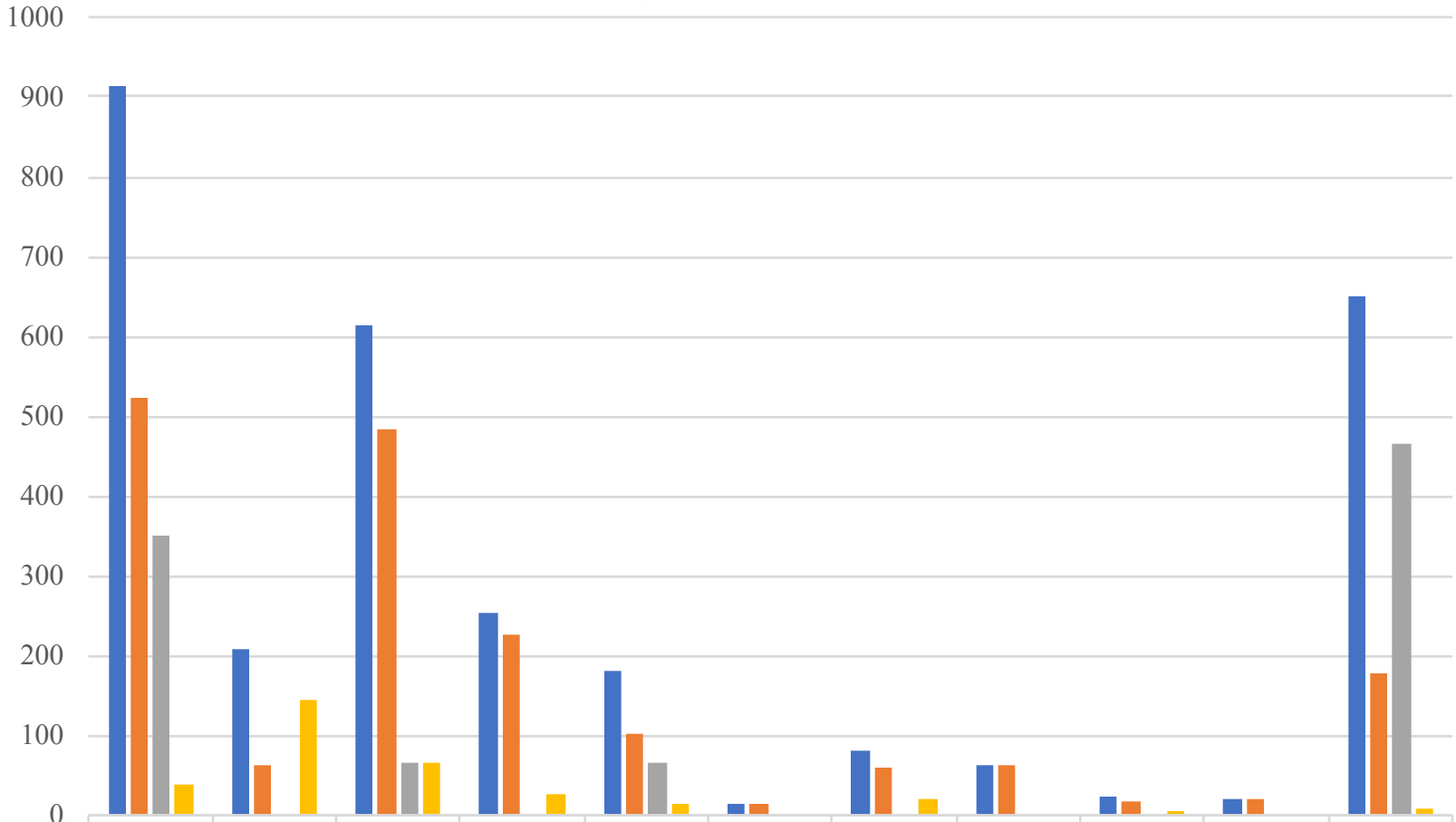
G1. Iran and the Arab Gulf Balance in 2018

	Iraq	Iran	GCC	Saudi	UAE	Bahrain	Kuwait	Oman	Qatar
Active Personnel	64,000	**523,000**	**368,100**	227,000	63,000	8,200	15,500	42,600	11,800
Reserve Personnel	-	**350,000**	-	-	-	-	-	-	-
Main Battle Tanks	318	**1,513**	**3,010**	1,926	421	180	293	117	73
AIFVs	675	**725**	**2,502**	1,065	554	89	465	197	132
APCs	910	**640**	**4,529**	2,381	1,245	203	260	250	190
Towed Artillery	60	**2,030**	**467**	218	93	36	-	108	12
Self-Propelled Artillery	72	**292**	**801**	356	181	82	106	24	52
Multiple Rocket Launchers	3	**1,476**	**192**	60	75	18	27	6	6
Combat Aircraft	60	**334**	**701**	365	156	38	66	58	18
Attack Helicopters	28	**50**	**102**	47	-	28	16	-	11
Major SAM Launchers	0	**237**	**282**?	236	?	6	40	-	?
Destroyers	-	-	**3**	3	-	-	-		
Frigates	-	-	**8**	4	1	-	-	3	-
Corvettes	-	**7**	**16**	4	10	-	-	2	-
Patrol and Coastal	32	**132**	**155**	26	32	52	20	10	15
Submarines	-	**3**	-	-	-	-	-	-	-
Submersibles	-	**18**	-	-	-	-	-	-	-
Mine Warfare	-	-	**5**	3	2	-	-	-	-
Landing Ships	-	**15**	**2**	-	2	-	-	1	-
Landing Craft	-	**13**	**27**	5	16	1	-	5	1

Adapted from the **IISS Military Balance, 2018**

G2. Comparative Military Personnel (thousands)



	Iran	Iraq	GCC	Saudi Arabia	Jordan	Kuwait	Lebanon	UAE	Qatar	Yemen	Israel
Total	913	209	613	252	181	15	80	63	22	20	650
Active Armed Forces	523	64	483	227	101	15	60	63	17	20	177
Estimated Reservists	350	0	65	0	65	0	0	0	0	0	465
Active Paramilitary	40	145	65	25	15	0	20	0	5	0	8

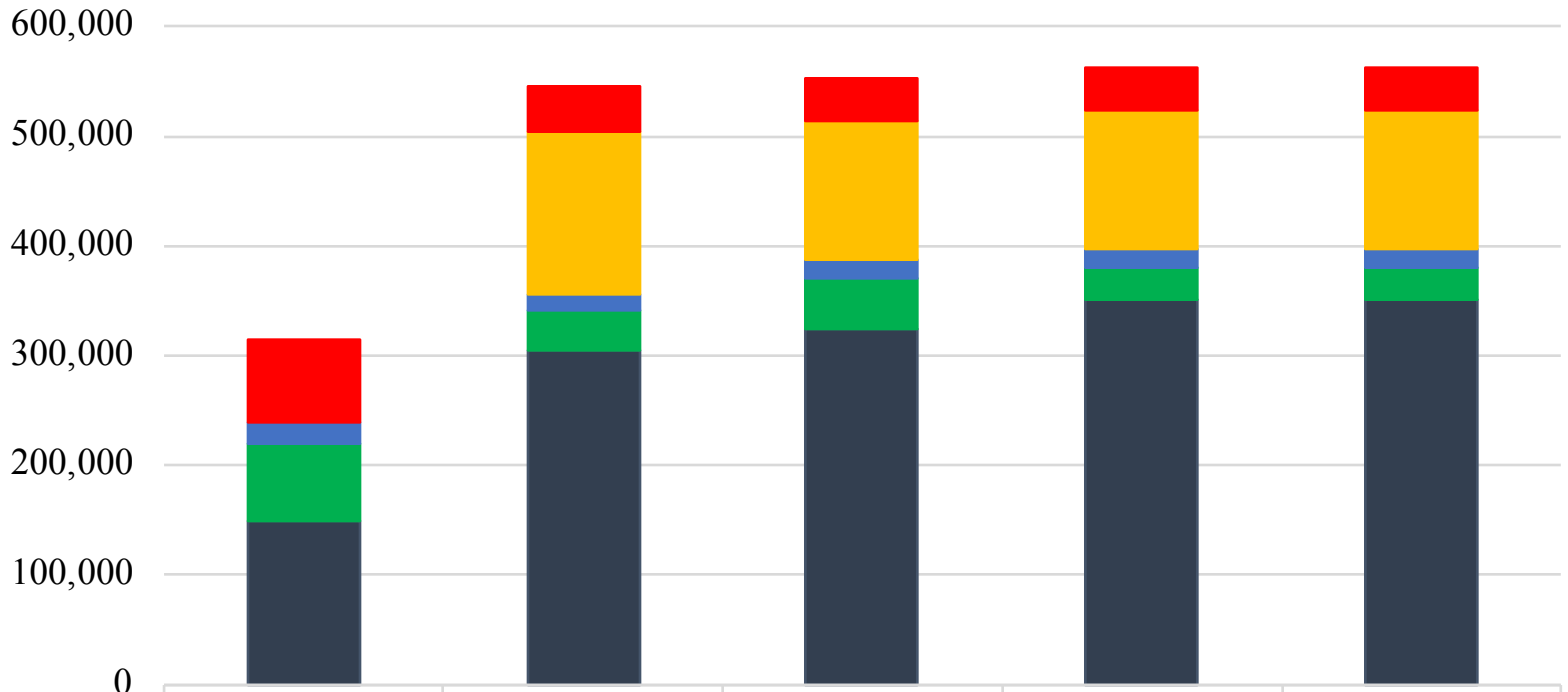
Source: IISS Country Comparison and Defense Data. 2018

G3. Iranian Military Forces: 1991-2017

Category	1991	2003	2013	2017
Active Manpower	504,000	513,000	523,000	523,000
Reserve Manpower	350,000	350,000	350,000	350,000
Main Battle Tanks	500	1,565	1,663	1,513
AIFVs	150	815	725	610
APCs	500	590	640	640
Towed Artillery	N/A	2085	2,030	2,030
Self-Propelled Artillery	85+	310	292	292
Multiple Rocket Launchers	N/A	889	1,476	1,476
Combat Aircraft	185	283	336	334
Attack Helicopters	100	85	50	50
Major SAM Launchers	230	205	234	N/A

Source: IISS, Military Balance, 2018

G4. Iran Active Personnel, by Year (1980-2017)



	1980*	1990	2000	2010	2017
Paramilitary	75,000	40,000	40,000	40,000	40,000
IRGC		150,000	125,000	125,000	125,000
Navy	20,000	14,500	18,000	18,000	18,000
Air Force	70,000	35,000	45,000	30,000	30,000
Army	150,000	305,000	325,000	350,000	350,000

Note*: 1980 Active Personnel does not include newly formed IRGC

Source: Adopted from the IISS, Military Balance, 1970-2018.

H. Military Modernization

Military Modernization

The final part of this analysis examines the impact of Arab Gulf and Iranian military spending and arms imports of the modernization of lead combat systems for each major group of military forces. Focusing on the rate of modernization in key combat systems provides a way of both illustrating the military impact of the previous military expenditures and arms transfers, and of measuring the effectiveness with which given countries are importing arms and funding their forces in way that shape their capability to fight *conventional* wars.

The key trends in force modernization are summarized in **Figure H1**. As might be expected, the patterns of modernization in the Arab Gulf states and Iran reflect the impact of the military expenditures and arms transfers discussed earlier, earlier provide broad indicators of total force strength and capability. However, much depends on how they are interpreted. Arms transfers are only useful to the extent they actually resulting useful military modernization. This not only involves making the right choices in weapons and technology but organizing them into effective forces to support the right missions.

The effective use of arms transfers also requires the creation of the right training, O&M, and support capabilities. Absorbing new weapons and technologies takes time. It is difficult enough to absorb advanced new weapons and military technology at the immediate operator and service level but integrating new systems into effective capabilities for combined arms and joint warfare requires a force-wide effort and one where the level of overall integration is critical, and where the effective use of fully integrated and interoperable battle management, C4I, IS&R, and service and sustainability capabilities areas important as weapons types and numbers.

Even then, the ability to properly absorb investments in arms and modernization is only one aspect of military capability. The choice of tactics and strategy are equally critical. So are the quality of personnel, readiness, sustainability, training, mobility, basing, maintenance, and repair capability. Placing too high a value on buying the latest and best can actually undermine both deterrence and warfighting capability if it means underinvesting in the other key aspects of military strength, or constant turbulence in a force structure as new systems have to be absorbed and made fully combat capable. Focusing on the "glitter factor" can be more a threat than an ally.

The nature of military modernization is also changing. As has been noted consistently throughout this study, the type and number of major weapons platforms available for use in conventional warfare is only one indicator of military modernization. Asymmetric and irregular warfighting capability have become key elements of modern force planning. Advances in precision guided weapons, and in IS&R systems areas important as advances in major weapons systems. Attention to human factors and ergonomics, long with ease of maintenance and repair, are also critical. Upgrading existing weapons can be as important as buying, new ones.

Hezbollah, the Assad forces in Syria, the Houthi in Yemen, and elements of the Shi'ite Popular Militia Forces in Iran. In practice, this has given Iran a level of regional influence and leverage that no Arab state has achieved with its regular forces. As **Figure I-1** shows, Iran is using its IRGC and intelligence services to carry out unconventional warfare or terrorist attacks in peacetime.

Nevertheless, the rate of conventional force modernization remains a critical test of capability, and a practical test of whether military and arms import expenditures are effective and well-judged. It must also be stressed that the Southern Arab Gulf states and today's regime in Iraq would almost certainly have the fully support of U.S. and several important European power projection capabilities – particularly those of Britain and France.

Conventional Modernization by Major Force Element

The following sections of this modernization analysis focus on conventional land force modernization efforts -- specifically on Iran's inventory of aging Main Battle Tanks, and relative artillery power compared to GCC states. Iran has steadily rebuilt its armored strength since the Iran-Iraq War, and has procured a larger artillery arsenal than any Arab Gulf state.

Next, the analysis considers air modernization efforts, specifically focusing on Iran's effort to sustain the limited capabilities of its aging air force inventory. Iran's combat aircraft, weaponry, sensors, and battle management systems have serious issues in competing with far more modern aircraft in U.S., allied, and most local air forces. It should be noted, however, that the integration of Arab Gulf air warfare systems – and IS&R, battle management, C4, and sustainability capabilities is more of a facade than a combat-effective reality.

The modernization of land-based air and missile defense systems is a less certain story. Until recently, the Arab Gulf states individually purchased far more modern and effective surface-to-air missile systems than Iran. Some – like Patriot – had a tactical and point-defense ABM capability. Once again, however, the integration of Arab Gulf land-based air warfare systems – and IS&R, battle management, C4, and sustainability capabilities remains more of a facade than a combat-effective reality.

Iran was forced to try to modify and sustain largely Vietnam-era surface-to-air missile systems, although it did steadily upgrade its sensors and BM/C4I capabilities and had a limited number of modern Russian TOR-M point defense systems. Iran may, however, have acquired enough Russian technology to r begin deploying far more modern systems with the capability of the Russian S-300, and may gain access to the Russian S-400. This could give Iran land-based air defense systems that some analysts feel have specifications that notably out perform the Patriot and possibly even THAAD. Such claims are deeply controversial, and Iran routinely makes public claims that grossly exaggerate the capabilities of many of its weapons systems.

The Arab Gulf countries have acquired a major lead in total modern larger surface ships. As note earlier, however, they have not tailored their naval forces and their joint warfare support to deal with Iran's very different asymmetric naval-missile-air threat. The Arab Gulf states maintain erratic levels of coordination and readiness, and again lack effectively coordinated battle management, IS&R, and C4 capability – as well as effective mine warfare and ASW/counter-submersible capability. The U.S. can provide many of these capabilities, as it can for the other branches of warfare, but these are areas where Arab Gulf forces could be far more capable if they were fully integrated/interoperable.

One area where Iran does have a decisive advantage is in its number of ballistic missiles and artillery rockets – an advantage it can try to exploit to compensate for its lack of modern airpower and to deter Arab Gulf air strikes. At present, these systems generally lack the combination of precision strike accuracy/reliability to be more than marginally lethal against key military and civil point targets and are largely effective at medium and long-ranges in firing against large base, major industrial facilities, and populated area targets like cities. Iran is, however, seeking to develop ballistic missiles with precision strike capability as well as advanced cruise missiles and UAV/UCAVs. This could radically transform Iranian strike capabilities and transform the entire Gulf Arab-Iranian military balance if Iran could fully modernize island-based air and missile defense and acquire this kind of advanced conventional missile strike capability.

As for overall force readiness and training, the quality of combat units varies sharply within a given country. This is as true of Iranian forces as Gulf Arab forces, and some Russian observers have commented that they were surprised by the lack of consistent Iranian performance in Syria. Saudi Arabia and the UAE maintain the best trained and most capable and armed forces among the Arab Gulf states, but each has its own weak units and each Arab Gulf force has some effective force elements.

Modernizing for What War?

As the U.S. has learned to its cost in Afghanistan and in fighting ISIS, and as Saudi Arabia and the UAE have learned in Yemen, even a decisive lead in conventional warfighting capability has limited value if you are not fighting a conventional enemy and cannot actually employ your full military strength. Iran and extremist movements like ISIS and AQAP have already shown the Arab world and the U.S. that there are other ways to create effective forces and exert strategic influence.

As has been discussed at the start of this analysis, Iran has a major lead over the Arab Gulf states in some key aspects of asymmetric warfare. The Iranian leads include the ability to fight low-to-medium level maritime battles of attrition in the Gulf area and potentially the Red Sea, steadily improving Iranian ballistic and cruise missile forces that may

acquire precision guided conventional warheads, and the ability to arm, train, and support non-state actors, militias, and hostile state actors like Assad. Iran's advisory and volunteer presence in Iraq, and ties to Arab Shi'ite forces are of particular concern. So are Iran's ties to Yemen, the split in South Arab Gulf forces that has led to the boycott of Qatar and other divisions in military effort, the struggles between Bahrain's Sunni ruling elite and its Shi'ite majority, and the uncertain outcome of the war in Yemen and possible expansion of Iranian influence in Yemen and the Red Sea.

The Iranian "Wild Cards" in the Gulf Balance

Iran also, however, has carried out a range of covert operations of the kind summarized in **Figure H2**, and there are other important Iranian "wild cards" that must be considered in looking beyond the conventional military balance.:

- Iran's air force does still rely heavily on conventional bombs in an era dominated by precision-guided attack weapons while Arab Gulf states like Saudi Arabia and the UAE has weapons with considerable stand-off capability. Iran is, however, building up major land-based missile forces and is seeking to give them precision guidance. Iran's land-based air defense modernization efforts are also making progress. Iran is buying a version of the S-300 long-range surface-to-air missile system from Russia.

- Iraq's unstable politics could lead to de facto Iranian control over key Shi'ite militias and even elements of the Iraqi government and forces. Moreover, Iraq as yet has no clear plans to develop a major national defense capability. Like Kuwait, it is a vulnerable "hinge" to the defense of the Southern Gulf, and any form of relatively free passage for Iranian forces through Iraq would sharply increase the air-land threat to Saudi Arabia and the lower Southern Gulf states.

- A successful pro-Iranian Shi'ite coup in Bahrain is very unlikely but is at least a future possibility. More important, the self-destructive tensions between Qatar and neighbors like Saudi Arabia and the UAE has further crippled a Gulf Cooperation Council whose security rhetoric disguised a major failure to develop effective levels of integration and interoperability in far too many areas.

- An Iranian "break out" in nuclear, chemical, or biological weapons – or broad conversion of Iran's ballistic and cruise missile forces to precision strike capability – would sharply alter the balance and escalation ladder in the Gulf.

- Much depends on a continuing commitment of U.S. British, and French power projection forces. A near-permanent war of attrition in Yemen, or future Houthi-Iranian victory of any kind, would radically change the threat in the Southern Gulf and Red Sea.

- Stronger Iran military ties to Russia, and/or Iranian access to the most advanced Russian and Chinese weapons, could radically change the balance of modernization.

- Regional security and stability are at least as dependent on civil reform and development as on military forces and modernization. Excessive security spending and/or failed efforts at development, full employment, and meeting civil needs could be as dangerous as any failure in military spending and development.

H2: Key Trends in Military Modernization

- **The gap between Iran and the Arab Gulf states is even greater in terms of arms transfers than in military spending and has grown sharply in favor of the Arab states in recent years.**
- **The broader failure of the GCC to achieve standardization and interoperability has been partly offset by the fact the two key Arab Gulf powers – Saudi Arabia and the UAE – have made massive and interoperable arms imports from the U.S.**
- **U.S. forward basing in Bahrain, Qatar, and Kuwait aids their militaries, and compensates for some of their weaknesses.**
- **Far more is involved than arms import spending. A review of key Iranian force elements shows many weapons are obsolete, obsolescent, or of relatively low quality. Many date back to the Shah or were worn during the fighting in the Iraq-Iraq War. Non-operational rates are often high, and sustainability in combat low.**
- **Iran's problems are made worse by a lack of easy or any access to upgrades to its systems, modern munitions, sensors, battle management, and IS&R equipment and sub-systems. These have a critical cumulative effect.**
- **Iran is, however, making important progress in ballistic and cruise missiles, land-based air defenses, weapons for the asymmetric naval-missile air forces it deploys to threaten maritime traffic in the Gulf region, and supporting its other asymmetric forces and capabilities.**

Figure H-2: Iranian Unconventional Warfare and Terrorist Operations - I

EUROPE

- **2018 – Belgium, France, Germany: Authorities in Belgium, France, and Germany arrested several Iranian operatives, including an Iranian government official, in a plot to plant a bomb to disrupt a political rally in Paris, France.**
- **2016-2018 – Germany: German authorities searched the homes and offices of 10 suspected IRGC-QF operatives in early 2018. In 2016, German authorities convicted an IRGC-QF operative for spying on the ex-head of a German-Israeli group and people close to him.**
- **2013 – Bosnia and Herzegovina: Two Iranian diplomats were discovered to be Iranian intelligence officers and expelled for espionage and connections to terrorism.**
- **2012 – Turkey: Four IRGC-QF operatives entered Turkey to attack Israeli targets; the attack was disrupted by Turkish authorities.**
- **July 2012 – Sofia, Bulgaria: An IRGC-QF operative was arrested by Bulgarian authorities for surveilling a synagogue.**
- **September 17, 1992 – Berlin, Germany: Lebanese Hizballah – with Iran's logistical support – assassinated four Iranian Kurdish dissidents in a small-arms attack at a cafe. Four operatives were tried and convicted in 1997.**
- **August 6, 1991 – Suresnes, France: Iranian operatives assassinated the former Iranian Prime Minister Shahpour Bakhtiar, who led an anti-Iranian regime movement. One operative was convicted, but two fled.**
- **July 13, 1989 – Vienna, Austria: Iranian operatives using diplomatic cover assassinated the head of an Iranian Kurdish dissident group and two others.**
- **December 1985-September 1986 – Paris, France: Lebanese Hizballah bombed a number of soft targets. Iran provided logistical support, and the attack resulted in 12 dead and at least 200 wounded.**
- **June 14-30, 1985 – Athens, Greece: Lebanese Hizballah – with Iran's logistical support – hijacked TWA flight 847 and murdered a U.S. Navy diver.**

AFRICA

- **November 2016 – Kenya: Two Iranian operatives and their Kenyan driver, a local embassy employee, were arrested and charged with information collection in connection with a terrorist act after surveilling the Israeli embassy.**
- **February 20, 2013 – Nigeria: Three Iranian operatives were arrested for planning attacks against U.S. and Israeli tourist sites and organizations. A terrorist cell leader received weapons training in Iran.**
- **June 2012 – Nairobi, Kenya: Two IRGC-QF operatives were arrested for planning bomb attacks against Western interests. Authorities discovered 33 pounds of explosive materials.**
- **October 2010 – Nigeria: Nigerian authorities seized an Iranian shipment of rockets, rocket launchers, grenades, and ammunition destined for rebels in the Gambia and Senegal.**

Figure H-2: Iranian Unconventional Warfare and Terrorist Operations - II

NORTH AMERICA

- **August 20, 2018 – United States: Two Iranian operatives were charged for conducting covert surveillance of Israeli and Jewish facilities in the United States, and collecting identifying information about U.S. citizens and U.S. nationals who are members of an Iranian opposition group.**
- **September 29, 2011 – Washington, DC, United States: The IRGC-QF supported a plan to bomb a restaurant to assassinate the Saudi Ambassador to the United States.**
- **September 2009 – Glendora, CA, United States: An Iranian operative hired a hitman to assassinate an Iranian-American regime opponent and radio personality.**
- **July 22, 1980 – Bethesda, MD, United States: An Iranian operative assassinated a former Iranian diplomat-in-exile, Ali Akbar Tabatabai, a vocal critic of then-Iranian Supreme Leader Ayatollah Ruhollah Khomeini.**

SOUTH AMERICA

- **January 8, 2015 – Montevideo, Uruguay: A senior Iranian diplomat was expelled for planning an attack near the Israeli Embassy.**
- **July 18, 1994 – Buenos Aires, Argentina: Lebanese Hizballah detonated a vehicle-borne improvised explosive device (VBIED) outside the Argentine-Israeli Mutual Association. Iran provided logistical support, and the attack resulted in 95 dead and 200 wounded.**
- **March 17, 1992 – Buenos Aires, Argentina: Lebanese Hizballah detonated a VBIED outside the Israeli Embassy. Iran provided logistical support. The attack killed 29 people and wounded 252.**

ASIA

- **February 2016 – Manila, Philippines: Philippine authorities thwarted an Iranian plot to hijack a Saudi Arabian civilian aircraft.**
- **April 13, 2013 – Kathmandu, Nepal: An Iranian traveling on a fake Israeli passport was arrested for conducting surveillance of the Israeli Embassy.**
- **February 14, 2012 – Bangkok, Thailand: Three IRGC-QF operatives planned attacks against Israeli diplomats in Thailand, but the operatives were arrested after accidentally detonating explosives. One operative and five others were injured.**
- **February 13, 2012 – New Delhi, India: IRGC-QF directed a bomb attack targeting Israeli diplomats that injured one Israeli and three Indian citizens.**
- **May 16, 2011 – Karachi, Pakistan: Iranian operatives assassinated Saudi diplomat Hassan al-Qahtani.**

Source: U.S. State Department, *Outlaw Regime,* October 2018, *https://www.state.gov/documents/organization/286410.pdf*

I. Land Force Modernization

Land Force Modernization

Iran does have one major potential advantage in conventional warfighting capability over its its Gulf Arab neighbors. The IISS reports that its large population allow it to support a native army manpower pool of more than 500,000 personnel. Army has some 350,000 personnel (250,000 conscripts), its IRGC has a nominal strength of 150,000, and its Basij "volunteers" can add a major element to its land forces for defense in depth.

Gulf Arab forces have far fewer native personnel and more limited nominal strengths, although native personnel dominate the personnel in some countries and make up a rising percentage in the rest. The IISS reports that Saudi Arabia's Army has 75,000 actives and its paramilitary – but armored – National Guard has 100,000 actives and reserves. The UAE has 44,400 personnel in its Army and a 12,000-person Presidential Guard. The Oman's army has 42,600 personnel, Kuwait's has 15,500, Qatar's has 12,000, and Bahrain's has. Iraq's regular army has 54,000, although the IISS estimates its complex mix of militias and paramilitary forces total 100,000. In reality, actual Arab Gulf manpower pools are small relative to the number of weapons in their land forces

The Arab Gulf forces have, however, sharply led Iran in equipment modernization. This lack of Iranian *conventional* force modernization can be illustrated by analyzing two key aspects of the overall trends in land force modernization: The trends in main battle tank (MBT) and artillery modernization since the beginning of the Iran-Iraq War. These two trends act as summary measures of the ability to use land forces to seize or defend space and conduct maneuver warfare. They have been critical elements of the fighting in the Iran-Iraq War, the first Gulf War in 1990-1991, and the invasion of Iraq in 2003.

It should be stressed , however, that conventional land force combat units – and the use of heavy armor and artillery weapons -- have not dominated civil fighting and counterinsurgency in Iraq since 2003. the fighting in Syria, or the fighting in Yemen, and that Iran would have to maneuver through Iraq to attack any Arab Southern Gulf country. The analysis also does not indicate what portion of Iran's MBT systems are operational, nor does it assess Iran's ability to conduct extended maneuver warfare, field repair capability, or tank inoperability.

- ***Figure I1: Iranian Major Land Force Combat Units:*** Shows that the Iranian Army has a large order of battle with many heavy nits that should, in theory, give it major armored maneuver capability. In practice, however, the following figures show that such forces generally have poor to limited major weapons and that Iran's inventory cannot effectively equip this large an order of battle.

- ***Figure I2: Iran: Reliance on Aging/Worn/Mediocre Systems - Land:*** Shows that Iran's total holdings consist largely of aging, combat worn, or mediocre systems, many towed. A number are obsolescent, and some have aged to the point where their operational capability is uncertain. Its holdings could give it substantial defense in depth capability, but often have uncertain maneuver and power projection capability.

- ***Figure I3: Comparative Main Battle Tank Strength by Type, 2018*** show the current main battle tank (MBT) strength of the Southern Arab Gulf States, Iran, and Iraq. The chart shows Iran has a quantitative MBT advantage against any one Arab neighbor, but fewer MBTs than the total South Arab Gulf (GCC) states and depends on tanks that have major qualitative disadvantages compared to the to MBTs used by the GCC states, Iraq, and Israel. Iran relies on aging MBT systems (such as the T-54/55/59s, M60A1s, and M-47/48s) compared to more modern Merkava tanks used by Israel, Iraqi T-72s, and Saudi M1A3s.
- ***Figure I4: Main Battle Tank Modernization*** highlights MBT modernization efforts across the region from 1970 through present day. The Southern Arab Gulf countries have clearly modernized at a far faster rate than Iran.
- ***Figure I5: Iran – Main Battle Tank and Other Modernization*** reflects the fact that Iran's MBT inventory took serious blows during the Iran-Iraq War 1980-1988. Iran turned to Russia and China, importing an array of MBTs over time including the T-54/-55, T-59, T-62, and T-72 between 1980-2000. Since the 1990s, Iran has, however, embarked on indigenous production efforts to upgrade its aging MBTs, and indigenously produce tanks of its own.
- ***Figure I6: Arab Gulf – Main Battle Tank Modernization*** summarizes the high rate of modernization in the Southern Arab Gulf states. For example, Kuwait chose to procure the US-built M1 Abrams tank in the wake of Kuwait's defeat to Iraqi forces in 1990 and the performance of US armor in the Gulf War,. The UAE army underwent modernization efforts in the mid-2000s, procuring a few hundred AMX Leclerc. This increased the UAE tank fleet substantially, improving its largely obsolescent armored force. Saudi Arabia began to procure the M1A2 Abrams MBT from the U.S. as a way to compete against the Soviet-built T-72.
- ***Figure I7: Iraq – Main Battle Tank Modernization*** summarizes the problems that remain in building up a key aspect of Iraq's military forces.
- ***Figure I8: Israel – Main Battle Tank Modernization*** provides a brief summary of the MBT development in the IDF as a contrast to the import dependent efforts in the Gulf.
- ***Figure I9: Artillery Modernization 1980-2017 and Figure G10: Comparative Artillery Power, 2018.*** The modernization data reflect a massive Iranian build-up of artillery forces that began during the Iran-Iraq War. This is the one area where Iran has a massive quantitative advantage over its Arab neighbors. The data highlight Iran's build-up of artillery power from 1990-present, increasing its inventory from ~1,300 artillery assets in 1990 to ~4,000 as of 2015. The table also reflects Iraq's depleted artillery force in the wake of the 2003 invasion. However, much of Iran's artillery inventory seems to be far too large and lacking in mobility to be used effectively in the offense or wars of maneuver, and difficult to supply except from static positions where rounds are already present. These data also do not show that Iran has made limited progress in deploying artillery fire-control and battle management systems, counterbattery radar capability, and long-range target acquisition capability. But its capability is improving steadily – Iran has actively sought more modern fire-control and targeting systems since the 1980s.

I1: Iranian Major Land Force Combat Units

- **4 Infantry divisions (+ 7 IRGC)**
- **4 Independent infantry brigades (+ 14 IRGC)**
- **4 Armored divisions (+ 3 IRGC)**
- **3 Independent armored brigades (+ 3 IRGC)**
- **7 Artillery regiments (+ 3 IRGC)**
- **2 Special forces commando divisions (+ 1 IRGC)**
- **3 Independent special forces brigades**
- **1 Special forces brigade**
- **1 Airborne brigade (+ 1 IRGC)**

Source: Adapted from *Jane's Sentinel Security Assessment - The Gulf States, 2018*

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I2: Iran: Reliance on Aging/Worn/Mediocre Systems - Land

Armored Fighting Vehicles

MBT 1,513+: 480 T-72S; 150 M60A1; 75+ T-62; 100 *Chieftain* Mk3/Mk5; 540 T-54/T55/Type-59/*Safir*-74;168 M47/M48; *Zulfiqar*
LT TK 80+: 80 *Scorpion*; *Towsan*
RECCE 35 EE-9 *Cascavel*
IFV 610+: 210 BMP-1; 400 BMP-2 with 9K111 *Fagot* (AT-4*Spigot*); BMT-2 *Cobra*
APC (T) 340: 140 *Boragh* with 9K111 *Fagot* (AT-4*Spigot*); 200 M113. **APC (W)** 300+: 300 BTR-50/BTR-60; *Rakhsh*

Artillery

SP 292+: **122mm** 60+: 60 2S1 *Gvozdika*; *Raad*-1 (*Thunder* 1);**155mm** 150+: 150 M109; *Raad*-2 (*Thunder* 2); **170mm** 30 M-1978; **175mm** 22 M107; **203mm** 30 M110
TOWED 2,030+; **105mm** 150: 130 M101A1; 20 M-56; **122mm** 640: 540 D-30; 100 Type-54 (M-30); **130mm** 985 M-46; **152mm** 30 D-20; **155mm** 205: 120 GHN-45; 70 M114; 15 Type-88 WAC-21; **203mm** 20 M115
MRL 1,476+: **107mm** 1,300: 700 Type-63; 600 HASEB *Fadjr* 1; **122mm** 157: 7 BM-11; 100 BM-21 *Grad*; 50 *Arash*/ *Hadid*/*Noor*; **240mm** 19+: ε10 *Fadjr* 3; 9 M-1985; **330mm** *Fadjr* 5
MOR 3,000: **81mm**; **82mm**; **107mm** M30; **120mm** M-65

Aircraft

10 Cessna 185; 2 F-27 *Friendship*; 4 *Turbo Commander* 690; **PAX** 1 *Falcon* 20
ATK 50 AH-1J *Cobra*
TPT 167: **Heavy** 20 CH-47C *Chinook*; **Medium** 69: 49 Bell 214; 20 Mi-171; **Light** 78: 68 Bell 205A (AB-205A); 10 Bell 206 *Jet Ranger (*AB-206)

Air Defense

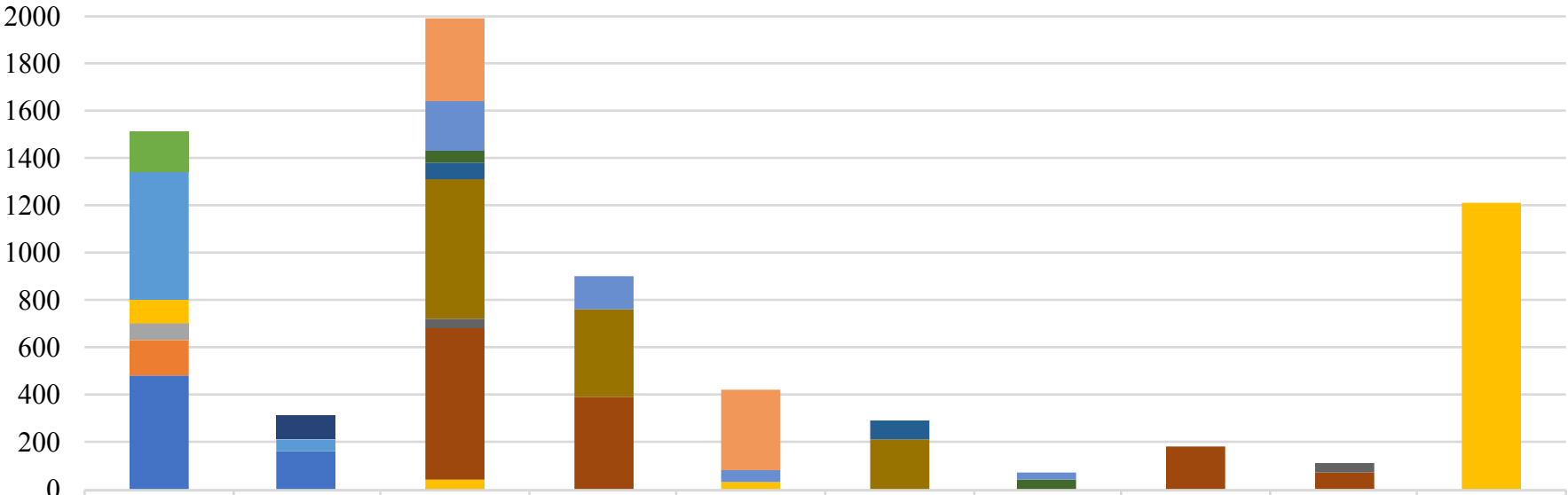
SAM short range FM-80. Point Defense: 9K36 *Strela*-3 (SA-14 *Gremlin*); 9K32 *Strela*-2 (SA-7 *Grail*)‡*; Misaq 1* (QW-1 *Vanguard*); *Misaq 2* (QW- 18); 9K338 *Igla-S* (SA-24 *Grinch*) (reported); HN-5A
Guns SP 180: **23mm** 100 ZSU-23-4; **57mm** 80 ZSU-57-2**TOWED** 942+: **14.5mm** ZPU-2; ZPU-4; **23mm** 300 ZU-23-2; **35mm** 92 *Skyguard*; **37mm** M-1939; **40mm** 50 L/70;**57mm** 200 S-60; **85mm** 300 M-1939

UAVs

CISR • Medium *Shahed* 129
ISR • Medium *Mohajer* 3/4; **Light** *Mohajer* 2*; Ababil*

Source: Adapted from IISS Middle East Balance. pp 334. 2018

I3. Comparative Main Battle Tank Strength, 2018



	Iran	Iraq	GCC	Saudi Arabia	UAE	Kuwait	Qatar	Bahrain	Oman	Israel
Leclerc	0	0	345	0	345	0	0	0	0	0
AMX-30	0	0	215	140	45	0	30	0	0	0
Leopard 2A7	0	0	43	0	0	0	43	0	0	0
M-84	0	0	75	0	0	75	0	0	0	0
M1A2	0	0	588	370	0	218	0	0	0	0
Challenger 2	0	0	38	0	0	0	0	0	38	0
M60A3	0	0	643	390	0	0	0	180	73	0
M1A1	0	100	0	0	0	0	0	0	0	0
M47/48	168	0	0	0	0	0	0	0	0	0
T-54/55/59	540	50	0	0	0	0	0	0	0	0
MK2/3/4/5	100	0	36	0	36	0	0	0	0	1210
T-62	75	0	0	0	0	0	0	0	0	0
M60A1	150	0	6	0	0	0	0	0	6	0
T-72S	480	168	0	0	0	0	0	0	0	0

Source: IISS Middle East Balance. pp 315-369. 2018

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I4: Main Battle Tank (MBT) Modernization

	Iran	GCC	Iraq	Israel
1970 *Baseline*	M-24, M-47, M-60A1	55 M-47, 35 M-41, 30 AMX-13	450 T-54/55, 140 T-34, 55 Centurion Mark 5, 40 M-24,	300 M-48, 450 Centurion Mark 5, 100 T-54/55, 200 Super Sherman
1975 *Additions*	300 Chieftain, 400 M-47/-48, 460 M-60A1,	150 AMX-30, 25 M-41, FV 101 *Scorpion*	No new systems observed	450 Centurion Mark 5, 100 M-48, 450 M-60, 300 T-54/55, 150 T-62, 65 PT-76
1980 *Additions*	575 Chieftain, 250 *Scorpion*	154 AMX-30, 100 M-60, 150 AMX-10P, 45 *Scorpion*, 70 Vickers, 50 Centurion, 160 Chieftain	2,050 T-54/-55/-62, 50 T-72, 100 AMX-30, 100 PT-76	100 Centurion Mark 5, 250 M-48, 360 M-60, 150 T-62
1985 *Additions*	100 T-54/-55, 50 T-62, 100 T-72	120 AMX-30, 50 M60A1, 230 AMX-10P, 36 OF-40 Mk2 (Lion), 15 *Scorpion*	400 T-54/-55/-62/-72, 450 T-55E, 200 Ch T-69, 50 Rom M-77, 150 Chieftain Mk 5, 150 PT-76	100 Centurion, 400 M-60/A1/A3, 250 *Merkava* I/II
1990 *Additions*	Ch T-59, 50 T-62	254 M60A3, 150 AMX-10P, 15 *Scorpion*, 33 Chieftain Mk 3/5, 6 M60A1	800 Ch T-59/-69, T-62, T-72, M-60	250 M-60/A1/A3, 88 T-54/-55, 400 *Merkava* I/II/III
1995 *Additions*	90 T-54/55, 260 CH T-59, 100 T-62, 50 T-72	44 M-1A2 Abrams, 126 M60A3, 150 M-84, 30 *Scorpion*	No new systems observed	150 *Magach* 7, 270 *Merkava* I/II/III
2000 *Additions*	*Zulfiqar*, 100 T-72, 70 T-72M1, *Boragh*	500 M-1A2 Abrams, 250 Leclerc, 99 M-60A3, 38 *Challenger* 2	No new systems observed	250 *Magach* 7, 330 *Merkava* I/II/III
2005 *Additions*	Data unavailable	Data unavailable	Data unavailable	*Merkava* MK IV
2010 *Additions*	No new systems observed	M-1A2s	M1A1M	No new systems observed
2015 *Additions*	No new systems observed	Leopard 2A7, Piranha	M113 (HMMVV)	No new systems observed
2020 *Additions*	*Karrar*	No new systems observed	73 T-90S	No new systems observed

Source: Adapted from various editions of the IISS Military Balance 1970-2018

I5: Iran – Main Battle Tank and Other Modernization

Prior to the overthrow of the Shah in 1979, Iran was reliant on the U.S. and UK to provide main battle tanks (MBTs) for Iran's army. Major procurements included the M-60A1, the M-24 light tank, the M-47/-48, and the Chieftain MBT from the UK. Iran's MBT inventory took serious blows during the Ira-Iraq War 1980-1988. Iran turned to Russia and China, importing an array of MBTs over time including the T-54/-55, T-59, T-62, and T-72 between 1980-2000.

Iran has rebuilt its armored strength since the Iran-Iraq War. Iran had a total of 700+ in 1993, 1,145 in 2000 and 1,513+ in 2018 according to IISS estimates. The IISS estimates that Iran's inventory of main battle tanks now includes some 480 T-72s, 150 M60A1s, 75+ T-62s, 100 Chieftain Mk 3/5s, 540 T-54/-55/-59/Safir-74, and 168 M-47/-48s. Iran also has 80 Scorpion light tanks.

It uncertain, however, as to how much of of Iran's heavy armored inventory is now fully operational or sustainable in combat. Its US- and UK-supplied MBTs are aging and battle worn. The T-72 is assessed to be Iran's only armored vehicle with relatively advanced fire control systems, sights, and anti-armor ammunition.

Since the late 1990s, Iran has claimed indigenous production programs to upgrade its Chieftain's into 'Mobarez' MBT and T-55s into 'Safir-74s'. Iran indigenously produced the Zulfiqar MBT, a tank comparable to the now defunct Brazilian ENGESA Osorio, introducing the first prototype in 1994. Since then, Iran has domestically produced two variants – the Zulfiqar 2 and Zulfiqar 3. Despite announcements that mass production of these platforms had begun as recently as 2013, no tanks have been observed to be in operational service. The same is true of other tank models called the Sabalan and Tiam.

More recently, Iran announced in early 2016 it had indigenously designed and produced the Karrar, a MBT externally similar to Russia's T-90MS, but predominantly based on Iran's T-72s. It seems to have had substantial Russian aid in this effort.

Iran has been more successful in building APCs and other fighting vehicles. These include the Boraq -- a copy of the BMP-1 based on Chinese modifications; the Raqash, and other specialized and NBC systems.

Iran is also seeking to produce a number of self-propelled artillery systems. These include the Hoveyzeh copy of the U.S. M109 155mm system, the Heider-41 using a Russian 120mm D-30 gun design, and the Heider-44, using improved Grad 122mm artillery rockets.

I6: Arab Gulf – Main Battle Tank and Other Modernization I

Saudi Arabia – Prior to the 1990's, Saudi Arabia's MBT inventory was made up of French-built AMX-30 tanks, and US-built M60-series A1 and A3 tanks. The AMX-30 and M-60A1 were designed in the 1960s and were considered obsolete by 1990. The M-60A3 is an upgraded version of the M-60A1 introduced in the late 1970s.

In the early 1990s, Saudi Arabia's MBT inventory was largely made up of AMX-30s and M-60A3s. Saudi Arabia began to procure the M1A2 Abrams MBT from the U.S. as a way to compete against the Soviet-built T-72, which already existed in the Iraqi inventory and potentially the Iranian inventory taken from Iraq during the Iran-Iraq War. These M1A2 Abrams now make up a bulk of Saudi Arabia's MBT inventory, alongside of aging M60A3s

Saudi Arabia has seen a steady rise in its main battle tank inventory since the end of the Gulf War. In 1993, Saudi Arabia had an inventory of 696 MBTs. With the procurement of the With the procurement of the M1A2/A2S Abrams, Saudi inventory has increased to 900 MBTs in 2018. Saudi Arabia's inventory of 900 main battle tanks includes 140 AMX-30, 370 M1A2/A2S Abrams, and 390 M60A3 Patton.

Kuwait – In the 1980s, Kuwait procured the M-84, a Yugoslav third-generation MBT, a variant of the Soviet T-72, as a response to the build-up of forces in neighboring Iraq and Iran. In the wake of Kuwait's defeat to Iraqi forces in 1990 and the performance of US armor in the Gulf War, Kuwait chose to procure the US-built M1 Abrams tank. The Abrams was eventually delivered from 1994 to 1997 and have since acted as the foundation of Kuwait's armored brigade forces.

UAE – UAE's MBT forces initially consisted of French AMX-30 tanks delivered in the early 1980s, as well as the Italian-built OF-40 Mk2 Lion MBT. The UAE army underwent modernization efforts in the mid-2000s, procuring a few hundred AMX Leclerc. This increased the UAE tank fleet substantially, improving its largely obsolescent armored force.

Qatar – Qatar's MBT force is historically small, and currently of limited quality. Qatar procured now obsolescent AMX-30 tanks in the late 1970s. The army is currently in the processing of modernizing its armor and artillery contingent through the procurement of advanced German Leopard 2A7 MBTs in order to increase their regional operation capabilities.

I6: Arab Gulf – Main Battle Tank and Other Modernization II

Oman – Oman has a relatively limited number of tanks, drawn from both U.S. and British sources. The army's armored equipment includes M-60A1s, M-60A3s, Challenger MBTs, and aging light Scorpion tanks. Oman relies more on armored personnel carriers (APCs) and armored reconnaissance vehicles, increasing their inventory of APCs from 2 in 1990 to 191 by 2005.

Bahrain – Bahrain's major combat equipment includes M-60A3 MBTs, procured in the late 1980s through 2000.

I7: Iraq – Main Battle Tank Modernization

Initial Iraqi MBT procurements included Chinese Type-59 and Type-69s, Soviet-made T-55s from the 1950 and 1960s. In the 1970s, Iraq embarked on a military build-up, procuring hundreds of MBTs in the form of T-54/-55s, T-72, AMX-30 MBTs, and PT-76 light battle tanks.

By 1980, prior to the Iran-Iraq War, US DoD estimates estimated Iraq to have some 4,500 MBTs, made up largely of T-54/-55s-/-62s/-72s, T-59/-69s, Chieftain Mk 3/5s, M-60, M-47, and M-77s.

Over the course of the 1980-1988 Iran-Iraq War, Iraq continued to procure armored systems thanks to a large number of suppliers in Europe, the Soviet bloc, and the Third World. In 1980, IISS data indicates Iraq's MBT force was approximately 2,850. By 1989, Iraq had procured an armored inventory of some 5,500 MBTs. This inventory consisted of the same types of tanks as previously imported, including T-54/-55/M-77, Ch T-59/-69, T-62, T-72 M-47, M-60, and Chieftain Mk3/5s.

During the 1991 Gulf War, Iraqi tanks, the most advanced of which were T-72s, were outmatched by Coalition force M1A1 Abrams. Iraqi T-72s lacked adequate night-vision equipment and had only half the range of an American M1A1 Abrams tanks. Estimates of Iraqi losses during the Gulf War vary, IISS data indicates that by 1993, Iraq's MBT inventory was down to 2,200. Iraq's MBT inventory remained at this size through the 1990s, IISS estimates for 2000-2001 indicate that Iraq's MBT inventory remained at 2,200.

In the aftermath of the U.S. invasion of Iraq in 2003, Iraq's MBT inventory has dwindled to the hundreds. US efforts to build up the Iraqi Security Forces from 2003-2011 focused largely on creating forces that could effectively confront terrorism, extremism, and civil conflict. As a result, the buildup did little to bring Iraqi security forces to the point that it could defend against Iraq's neighbors. By 2013, Iraq's MBT inventory consisted of T-55s, T-72s, and newly procured M1A1 Abrams. The M1A1 Abrams were a significant improvement in mobility, firepower, and armor in comparison to Iraq's against M-71 series MBTs.

In 2017, Iraq committed to purchasing T-90S and T-90SK MBTs from Russia. These modern MBTs would likely replace the legacy T-55 fleet.

I8: Israel – Main Battle Tank Modernization

Israel's use of armored vehicles dates back the 1949 War for Independence, where Israel relied on modified truck and "tankettes" to build its initial defense forces. Early procurements focused on deterring enemy ground forces from launching ground invasion. Early procurements of foreign-built armor include the Super Sherman, a modified American M4 Sherman Tank that became the standard tank of the IDF's armored units in the 1950s.

These tanks were slowly retired from 1970 onwards. Another procurement was the M-48 Patton MBT, sold to Israel by West Germany and later the United States during the 1960s and 1970s. Israel also received deliveries of the British Centurion Mark 5, which were heavily upgraded and used during the Six-day War in 1967. Iran also captured many T-54/-55 MBTs from Syria and Egypt during this time and kept some of them in service. In the 1970s, Israel procured the M60A1/A3 Patton from the United States, many of which fought in Lebanon during the 1980s.

Israel also sought a domestically produced tank capability as early as the 1960s. The Merkava Mk1 tank was supplied to the IDF in 1979. The Merkava series now serves as backbone of Israeli armor elements. An upgrade to the Merkava Mk 1, the Merkava MK 2 was rolled out in the mid-1980s. The Merkava Mk 3 was rolled out in the early 1990s, and the Merkava IV – touted as one of the most sophisticated tanks in the world – was rolled out in 2004. Merkava Mk IVs have replaced older variants of the Merkava and enabled the retirement of the US-supplied M60A1 series MBTs.

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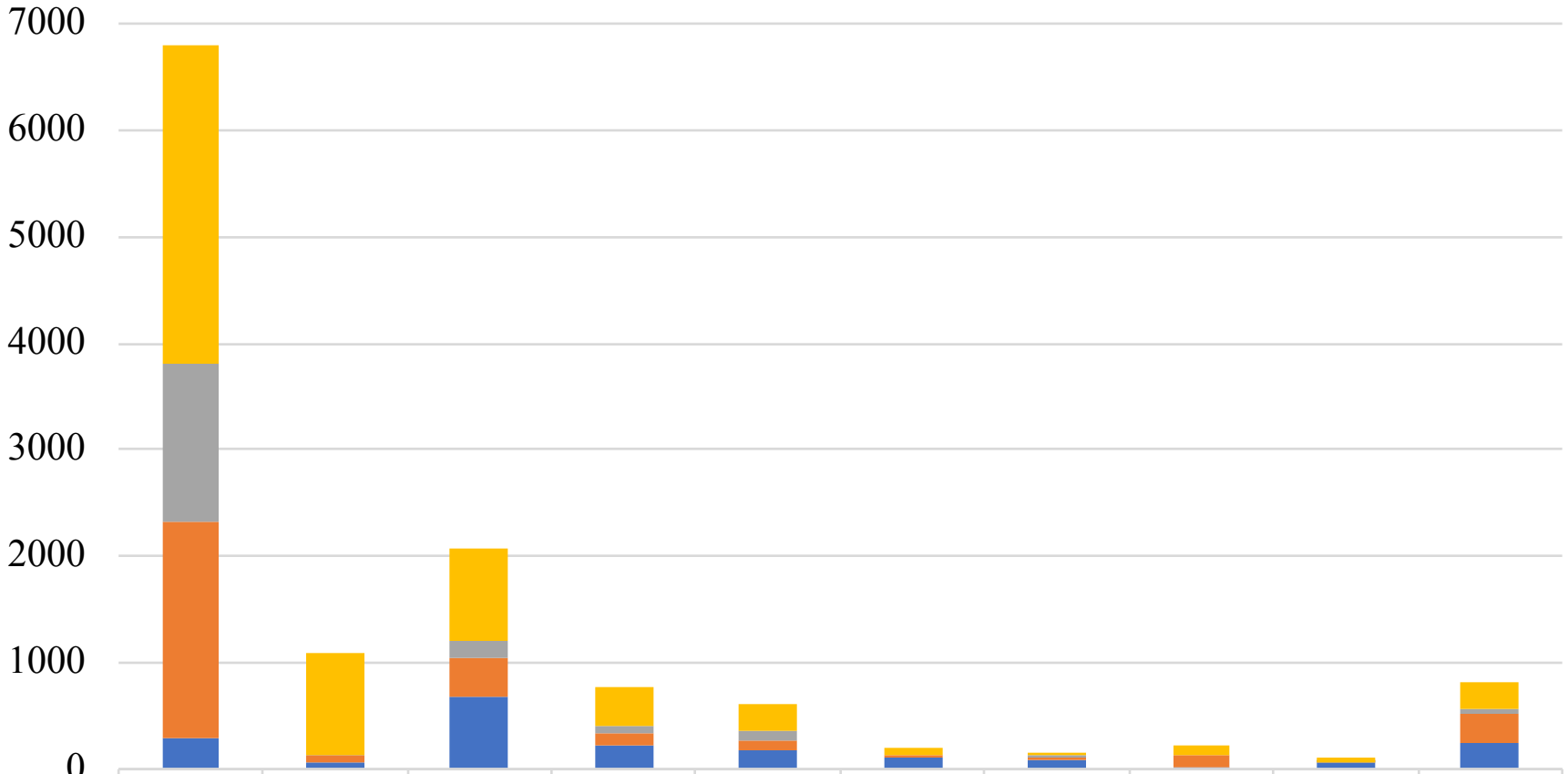
I9: Artillery Modernization 1980-2017

	Iran	Saudi Arabia	UAE	Qatar	Israel	Kuwait	Iraq	Bahrain
1980	Total = 1,000+ 75mm, 330 105mm M101A1, 130mm, 102 155 m, 203mm M115 towed, 175mm SP, 650 23mm, 64 M-21 RL 10 M-114 155mm, 440 M-109A1 SP 155mm, 14 M-110 203mm SP, 72 BM-21 122mm MRL, 1,800 23mm, 35mm, 40mm, 57mm, 85mm towed	Total = n/a How: 105mm pack; SP: 105mm, 155mm how, M-42 40mm Sp AA gun	Total = n/a; 22 25-pdr, 105mm guns, AMX, 155mm SP how; 81mm mor	Total = n/a; 4 25-pdf guns, 6 155mm G5 how; 81 mm mor	Total = n/a; 500 105mm, 450 122mm, 130mm M-46, and 155mm Soltam M-68/-71, 120 M-109, 155mm, L-33 155mm, 60 M-107 175mm, 48 M-110 203mm; 900 81mm, 120mm BM-21, 160mm LAR-160 mor; 122mm, 135mm, 240mm RL; 900 Vulcan/ Chaparral 20mm msl/gun systems	Total = n/a; 10 25-pdr guns, 80 AMX 155mm sp how	Total = n/a; 800 75mm, 85mm, 122mm, 130mm, 152mm guns; 120mm, 160mm mor; BM-21 122mm MRL; 1,200 23mm, 37mm, 57mm, 85mm, 100mm towed; ZSU-23-4 and ZSU-57-2 SP AA guns	Total = n/a; 6 81mm mor
1985	Total = 1,200 Guns: 1,000 M-116 75mm pack, M-1965 85mm, M-46 130mm towed, 30 M-107 155mm SP; How: M-114 towed, M-115 towed; MRL: Ch Type-63 12 X 7 107mm, 65 BM-21 40 X 122mm; MOR: 81mm, M-30 4.2-in. (107mm), 3,000 120mm	Total = n/a; 100 M-101/-102 105mm, 29 FH-70, 18 M-198 towed, 275 M-109 and GCT 155mm sp; MOR: 81 mm, M-30 4.2-in	Total = n/a; 50 ROF 105mm, Mk F-3 sp 155mm; M-56 105mm pack	--	Data unavailable	Total = n/a; 20 AMX Mk F-3, 18 M-109A2 155mm sp; MOR: 81mm	Data unavailable	Total = n/a; 8 105mm lt
1990	Total = 1,300 Towed: 105mm M-56, 122mm D-30, CH Type-54, 155mm: 50 M-71, 18 FH-77B, 130 GHN-145, 50 G-5; MRL: CH Type-81, BM-11, RM-70	Total = n/a; Towed: 11 FH-70, 72 M-198 , M114; SP Arty: 60 GCT; MRL: 70 Astros II; MOR: 120mm Brandt	Total = n/a; SP Arty: 40+ G-6; MRL: 25 FIROS-25; MOR: 120mm	Total = n/a; SP Arty: 6 AMX Mk F-3 155mm; MRL: 4 Astros II Mk 3	Total = 1,520 (not incl. MOR); Towed: 155mm Soltam M-68/-71, M-839P/-845P; SP Arty: 34 M-7 105mm, 200 M-50 155mm, 500 M-109A1/A2 155mm, 200 M-110; MRL: 240mm BM-24, 290mm LAR-290	Total = n/a; Towed: 8 M-101 155mm; SP: 18 GCT; MOR: 6 M-30 SP 107mm	Total = n/a; Towed: 1,200 incl. 105mm M-56 pack, 12mm D-74, D-30, M-1938, 130mm M-46, Type 59-1, 155mm G-5, GHN-45, M-114; SP Arty: 122mm 2S1, 152mm 2S3, 155mm M-109A1/A2, AUF-1; MRL: 107mm, 122mm BM-21, 127mm Astros II, 132mm BM-13/-16; MOR: 81mm, 120mm, 160mm M-1943	Total = n/a; Towed: 14 M-198; MOR: 9 M113A2 120mm
1995	Total = 2,320 (excludes MOR) Towed: 30 D-20, 50 WA-021; SP: 50 2S1, 15 M-1978; MRL: 40 Hadid/Arash/Noor, 320mm Oghab, 333mm Shahin 1/-2, 355mm Nazeat; MOR: total = 3,500	Total = n/a; Towed: 8 M-115 203mm; SP Arty 30-GCT	No new systems observed	Total = n/a; 6 G5; 22 AMX Mk F-3; MOR: 15 120mm	Total = 1,550+ (not incl. MOR); Towed: 100 D-30 122mm, 50 M-114A1; SP Arty: 170 M-107 175mm; MRL: 227mm 9 MLRS; MOR: total = 2,740; 700 81mm, plus abt 5,000 smaller aclibre (60mm)	No new systems observed	Total = 2,100 (not incl. MOR); MRL: 262mm Ababeel; MOR: 240 mm	Total = n/a; SP: 13-M110 203mm; MRL: 9 M270 MLRS 227mm
2000	Total = 2,904 (excludes MOR) Towed: 400 122mm D-30, 100 PRC Type-54, 1,100 M-46/Type-59; MRL: 500 PRC Type-63, Haseb, Fadjr 1, 9 M-1985, Fadjr 3; MOR = 6,500	No new systems observed	Total = n/a; Towed: 20 PRC Type-59-1	Total = n/a; MOR: 24 L16 81mm, 15 Brandt 120mm	Total = 1,573 (not incl. MOR); Towed: 100 Soltam M-46; MRL: 40 227mm MLRS; MOR: total = 5,000	Total = n/a; MRL: 27 Smerch 9A52 300mm; MOR: 12 RT-F1 120mm	Total = 2,550 (not incl. MOR)	No new systems observed
2005	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
2010	Total = 3,798 (excludes MOR); MOR: total = 5,000	Total = 855 (incl. MOR); SP: 60 AU-F-1, 110 M109A1B/A2 155mm	Total = 561+; SP: 78 G-6, 125 M-109A3, 18 Mk F3; MRL: 18 LAU-97, Type-90 122mm, 20 HIMARS 227mm, 6 9A52 Smerch; MOR: 114 L16 81 mm, 21 Brandt 120 mm	Total = 89; MOR: 4 VAB VPM 81, 26 L16	Total = 550 (incl. MOR); SP: 250 M109A5	Total = 218; SP: 19 M109A3, 51 PLZ-45	Total = 1,386+ (not incl. MOR); SP: 24 M109A5; Towed: 120 M198; MOR: total =1,200; 650 M252 81mm, 550 M120 120mm	Total = 151; SP: 20 M109A5 155mm, 62 M110A2 203mm; Towed: 8 L118 Light Gun, 14 M-198; MOR: 12 L16 81mm
2018	Total = 3,798+ (excudes MOR) [SP = 292, Towed = 2,030, MRL = 1,476] SP: Gvodzika, Raad-1; Towed: Type-88 WAC-21; MRL: 600 HASEB, BM0-11, BM-21 Grad, Fadjr 5 MOR = 3,000	Total = 761 (incl. MOR); SP: 54 PLZ-45; MOR: 37 M12-1535	Total =600+; Towed: 73 L118 Light Gun 105mm; MOR: 20 Brandt 81mm, 96 RG-31 MMP Agrab Mk 2 120mm	Total = 115+; MRL: 2+ (30-tube) 122mm	Total = 530 (incl. MOR); MRL: 58 122mm Bm-21 Grad	Total = 211; SP: 18 M109A3	Total = 1,085+ (incl. MOR); SP: 18+ 152mm Type-83; MOR total = 950+	Total = 161; MRL: 4 SR5

I10. Comparative Artillery Power, 2018



	Iran	Iraq	GCC	Saudi Arabia	UAE	Kuwait	Bahrain	Oman	Qatar	Israel
Mortars	3000	950	872	367	251	78	30	101	45	250
MRLs	1476	3	154	60	75	0	13	0	6	30
Towed	2030	60	386	110	93	27	36	108	12	275
Self-Propelled	292	72	669	224	181	106	82	24	52	250

Source: IISS Middle East Balance. pp 315-369. 2018

J. Air Force Modernization

Air Force Modernization

This section summarizes air force modernization trends in Iran, Iraq, Israel, and the GCC states. The analysis focuses on fixed-wing combat aircraft modernizations since the beginning of the Iran-Iraq War. It highlights the contrast between the high rate of Arab Gulf modernization and Iran's reliance on aging, worn, and mediocre US, Chinese, and Soviet air systems, and comparative fixed-wing combat aircraft strength across the region.

Although Iran maintains a fixed-wing combat aircraft inventory similar to that of Saudi Arabia and Israel. Iran's readiness and force quality remain major issues. It's unclear whether *and when* its current rate of air modernization, which has in recent years focused on domestically producing legacy aircraft, can offset the aging Western-supplied aircraft and the qualitative improvements in U.S. and southern Gulf Forces. It is equally uncertain that its own production plans can achieve their stated goals at any point in the near term.

- ***J1: Combat Aircraft Modernization: 1970-2018*** summarizes the comparative modernization of Gulf air forces since 1970, using Israel as a comparative benchmark. The high rate of Arab Gulf modernization is clear. The lack of Iranian modernization after the fall of the Shah is equally clear as are Iran's nascent efforts at producing its own aircraft.
- ***J2: Comparative Total Fixed-Wing Combat Aircraft Strength, 2018*** provides a comparison of total combat air strength. It shows that the Arab Gulf states have superior numbers even if one ignores U.S. and European Power projection capabilities.
- ***J3: Comparative Fixed-Wing Combat Aircraft Strength By Type, 2018*** shows that the Southern Gulf Arab states have a massive advantage in fixed wing aircraft quality. Iran's more recent combat aircraft imports consist of early export versions of the MiG-29A/U/UB Soviet combat aircraft, early export versions of the Sukhoi Su-24MK, the Su-25 anti-tank combat aircraft, the J-7 Airguard – a Chinese variant of the MiG-21 – and the unexpected delivery of fleeing Iraqi Mirage F-1E aircraft during the Gulf War. None of these systems can compare to Saudi F-15C/Ds, F-15S, Tornado IDS, and Typhoon EF-2000s.
- Iran also has no modern AWACS-like airborne control system, and its overall C^4I system has an inferior mix of sensors, communications, and data processing systems. It has limited EW capabilities, limited refueling capabilities, and limited ability to carry out effective unit or force-wide tactics, although it has made use of optical fiber systems, sheltered ground-based command centers, and a range of improved support equipment like an armed Hamash UAV, and the Mohadjir secure communications relay.

- Work by Farzin Nadimi of the Washington Institute ("Responding to Iran's New Weapons and Naval Drills in the Gulf," Policywatch 3006, August 21, 2018) does note, however, that Iraq may have succeed in rebuilding and modifying ten Iraqi Su-22M-4 Fitter fighter jets that Iraq flew to Iran to escape U.S. attacks in 2003 out of a pool of 16-22 aircraft. These are now aging air frames but could be equipped with upgrade avionics and sensors, laser or GPS guided missiles and bombs, cluster munitions. If Iran could equip them with longer-range cruise missiles, they might be able to compensate for their lack of air combat capability, and Iran's lack of an AWACS-like system to manage air warfare by operating and striking from a safe distance.
- Iran has displayed models of an F-313 Stealth Fighter since 2013, but they seem more propaganda displays than real advances in producible prototypes..
- The practical problem with such analysis is that there is not enough reliable open source data to determine Iranian capabilities to modify, update, and make its aircraft and air munitions effectively, or its level and types of training for large-scale air combat. Iran makes many unvalidatable claims, some of which are almost certainly true. It has not engaged in air warfare, however, since 1988, and its performance in the Iran-Iraq War was limited to dismal once it had to sustain its forces without access to stocks of U.S. equipment and parts.
- ***J4: Comparative Armed/Multirole Helicopter Strength, 2018*** shows that the Southern Arab Gulf states have the same advantage in rotary wing aircraft numbers and quality. Iran has not taken major deliveries on advanced rotary wing military aircraft since the fall of the Shah.
- ***J5: Iran: Reliance on Aging/Worn/Mediocre Systems – Air*** shows how reliant Iran is on aging and mediocre systems, and its slow progress in actually producing its own aircraft. . It has done an excellent job of keeping aging systems flying and making limited modifications, but it is not competitive with modern forces. Iran's more recent combat aircraft imports consist of early export versions of the MiG-29A/U/UB Soviet combat aircraft, early export versions of the Sukhoi Su-24MK, the Su-25 anti-tank combat aircraft, the J-7 Airguard – a Chinese variant of the MiG-21 – and the unexpected delivery of fleeing Iraqi Mirage F-1E aircraft during the Gulf War. None of these systems can compare to Saudi F-15C/Ds, F-15S, Tornado IDS, and Typhoon EF-2000s.
- Iran has received few deliveries of new aircraft and has had to rely on the sale of older and less advanced combat aircraft from the former Soviet Union and China to rebuild its combat aircraft strength since the Iran-Iraq War, aging. Accidents, and cannibalization have depleted Iran's aircraft inventory.

- Iran has, however, improved its refueling capability, tried to develop a system that can use radars on its F-14s as mini-AWACS systems, and upgraded the avionics and precision air combat and strike systems on its more advanced combat aircraft. It has developed its own SIGINT and other intelligence aircraft and UAVs, has created combined fighter and SAM point defenses of key cities and facilities, and has steadily improved training, planning, and those aspects of sustainability it has the resources and parts/equipment to address. It has also attempted to modify its Hank missiles to replace the now ineffective Phoenix missiles on its F-14s. It has also manufactured and deployed some versions of its Saeghe and Saeghe-2 copies of the F-5A/B and F-5C/D.
- ***J6: Iranian Aircraft Age and Service Years*** reinforces the previous Figure by showing how old much of Iran's inventory now is. The table indicates Iran's continued reliance on aging US aircraft procured in the 1960s and 1970s such as the F-4, F-5, and F-14. These combat aircraft systems have serious issues competing with the far more modern aircraft in U.S., allied, and most local air forces.
- ***J7: Iran Air Combat Modernization*****:** Summarizes Iran's air modernization strategy and its limits**.** It is important to note, however, that Iran does have impressive reverse engineering and modification capabilities and has had decades in which to modify its older aircraft and improve their sustainability. In August 2018, it announced the development of a new fighter called the Kawsar which bore some resemblance to the F-5F, but which Iran claimed was a 4th generation fighter with advanced avionics, communications, and displays, and the ability to use precision guided missiles and bombs. Iran has made many exaggerated claims in the past, but the limited videos of the aircraft indicate a significant level of manufacturing progress – at least at the prototype level.
- Iran is also developing and deploying cruise missiles and a variety of unmanned aerial vehicles like the Shaheed 129 recce systems (2,000 km range), Ababil short range recce system (100-150 Km), RQ-170 copy of a U.S. stealth system,
- ***J8: Southern Arab Gulf Air Combat Modernization*** highlights the key trends in Southern Arab Gulf forces by country. Most buys have been well-chosen and effectively absorbed into national force structures, but some recent major buys of expensive systems like the F-15 and Typhoon seem designed more to win political influence with the seller country than serve a military purpose.
- In contrast, several Southern Gulf Arab air forces have fought in the Gulf War of 1990-1991, Iraq and Syria since 2012, and Yemen since the start of its civil war. Saudi Arabia, Kuwait, Oman, and the UAE have also performance well in exercises and training – although their joint warfare capabilities seem limited. They also have access to the latest in air munitions, targeting aid, and avionics. These systems include advanced strike systems like the Storm Shadow, a British, French and Italian low-observable air-launched cruise missile. This is a precision strike cruise missile with a range of 560+ kilometers (300+ NM).

- Wikipedia notes that it has a warhead with an initial penetrating charge to clear soil or enter a bunker, then a variable delay fuse to control detonation the main warhead. "Intended targets are command, control and communications; airfields; ports and power stations; AMS/ammunition storage; surface ships and submarines in port; bridges and other high value strategic targets.

  It is a fire and forget missile, programmed before launch. Once launched, the missile cannot be controlled or commanded to self-destroy and its target information cannot be changed. Mission planners programme the missile with the target air defences and target. The missile follows a path semi-autonomously, on a low flight path guided by GPS and terrain mapping to the target area. Close to the target, the missile climbs and then dives. Climbing to altitude is intended to achieve the best probability of target identification and penetration.

  During the bunt, the nose cone is jettisoned to allow a high resolution thermographic camera (Infrared homing) to observe the target area. The missile then tries to locate its target based upon its targeting information (DSMAC). If it can not, and there is a high risk of collateral damage, it will fly to a crash point instead of risking inaccuracy. Recent enhancements include the capability to relay target information just before impact, usage of one-way (link back) data link, to relay battle damage assessment information back to the host aircraft."

- It is only one of the advanced air combat and air strike weapons available to Southern Arab Gulf forces, and Saudi Arabia, the UAE, and Bahrain now have extensive combat experience with precision strike weapons.
- ***J9: Iraq Air Combat Modernization*** highlights the limited progress in Iraq's air development.
- ***J10: Israel Air Combat Modernization*** summarizes Israeli progress as a key benchmark for comparison

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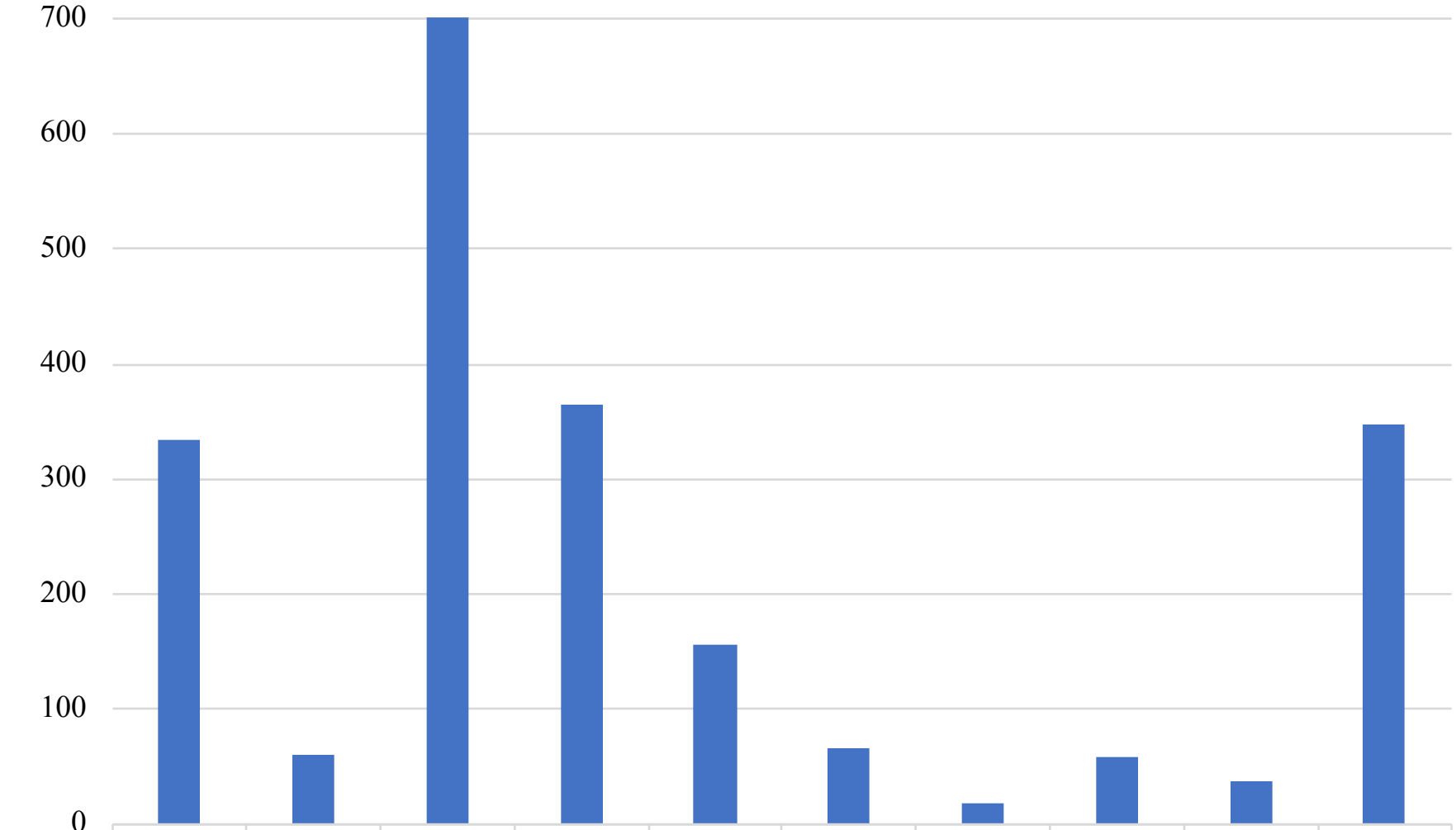
J1: Combat Aircraft Modernization: 1970-2018

	Iran	GCC	Iraq	Israel
1965	127 F-5A/B Freedom Fighter*	No new systems observed	No new systems observed	No new systems observed
1970	32 F-4D, 20 F-86	16 F-86, 24 BAC-167 Strikemaster, 25 Lightning Interceptors	16 Tu-16 medium bombers, 10 Il-28 light bombers, 50 Su-7, 36 Hunter Mark 9, 20 T-52 Jet Provost, 60 MiG-21 Interceptors, 45 MiG-17 and MiG-19	12 Vautour light bombers, 36 F-4E Phantom, 67 A-4E Skyhawk, 60 Mirage IIIC, 30 Mystere IVA, 30 Ouragan, 10 Super Mystere
1975	64 F-4E, 80 F-5A, 45 F-5E, 4 RF-4E, 13 RF-5A, 16 Super Frelon	98 F-5B/E/F, 12 Mirage V, 25 Hunter, 3 MB-326, 2 AB-206, 2 AB-205, 1 Cessna 182, 30 A-4KU, 18 Mirage F-1C, 2 F-1B,	30 MiG-23, 10 Su-7, 40 MiG-21 Interceptors, 35 Mi-4, 15 Mi-6, 30 Mi-8	166 F-4E, 75 Mirage III/ Kfir, 133 A-4E/H/M/N Skyhawk, 6 RF-4E, 9 Super Frelon
1980	92 F-4D/E, 63 F-5A/E/F, 77 F-14A	26 Mirage 5AD, 3 5RAF, 10 Hunter FGA-76,	60 Su-20, 15 MiG-21, 48 Mi-8, 41 Mi-24, 27 Alouette III, 10 Super Frelon, 40 Gazelle, 3 Puma, 7 Wessex Mk 52	25 F/TF-15, 30 Mirage III/ Kfir, 12 RF-4E, 2 OV-1E, 4E-2C
1985	Naval Air: 2 combat ac, 12 combat hel. 2 P-3F Orion, 12 SH-3D, 2 RH-53D	62 F-15C/D, 3 Alphajet, 7 Alouette III, 14 Mirage F-1E/D	7 Tu-22, 8 Mirage F-1, 5 MiG-25, 6 Mirage F-1EQ, 4 F-1BQ	75 F-16 A/B, 20 F/TF-15
1990	24 MiG-29A/U/UB, 40** SU-22UM-3K Fitter G, SU-22M4 Fitter K, 24 Su-24MK Fencer D, 7 Su-25K/UBK Frogfoot, 24 J-7 Airguard	25 Tornado IDS, 19 Tornado ADV, 12 Mirage 2000, 12 F-16C/D, 8 F-5E, 4 F-5F	4 CH H-6D, 30 J-6, 60 MiG-23, 64 Mirage EQ5/-2000, 20 Su-7, 10 Su-20, 16 Su-24, 60 Su-25, 95 MiG 21, 20 MiG 25, 24 Mirage F-1EQ, 30 Mig-29, 40 MiG-24	25 F-15C/D, 75 F-16 C/D, 7 Hughes 500 MD
1995	24 Mirage F-1E, 6 Azarakhsh	30 Tornado IDS/ ADV, 78 F-15C, 20 F-15D, 10 Mirage 2000 EAD, 32 F/A-18C, 8 F/A-18D,	MiG-27	50 F-16A/B, 50 A-4N,
2000	No new systems observed	48 Tornado IDS, 72 F-15S, 12 Mirage 2000-5EDA, 10 F-16 C/D	F-7	25 F-15I, 50 F-16I, 5 B200
2005	Data unavailable	12 AS-532A2	Data unavailable	102 F-16I
2010	6 Saegheh	72 Typhoon EF-2000, 80 F-16E/F	No new systems observed	102 F-16D
2015	1 Saegheh 2	No new systems observed	Su-25, F-16C/D, L-159A	No new systems observed
2020	10-16 Su-22?, Kawsar	82 F-15 Eagle (SA/SR), 28 Eurofighter Typhoon, F/A-18 E/F	No new systems observed	F-35 Lightning II

J2: Comparative Total Fixed-Wing Combat Aircraft Strength, 2018



	Iran	Iraq	GCC	Saudi Arabia	UAE	Kuwait	Qatar	Oman	Bahrain	Israel
Aircraft	334	60	701	365	156	66	18	58	38	347

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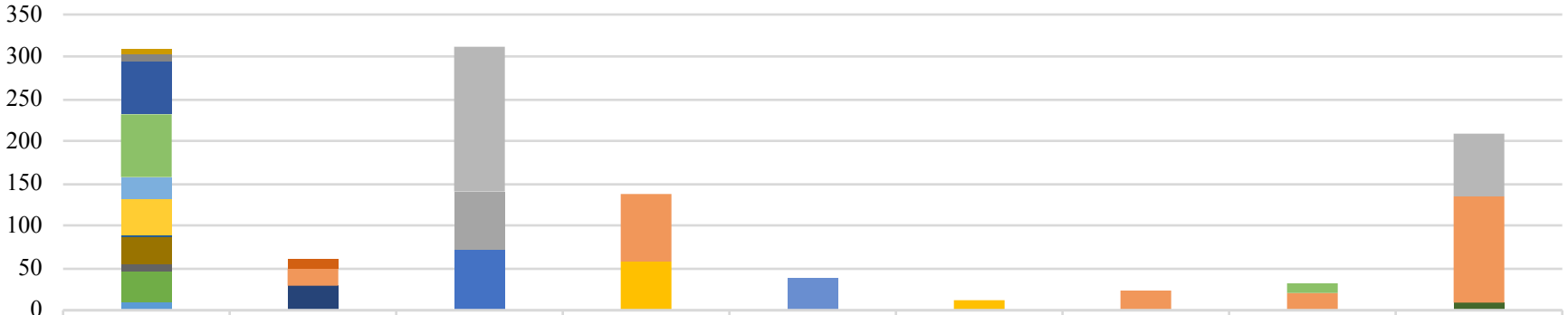
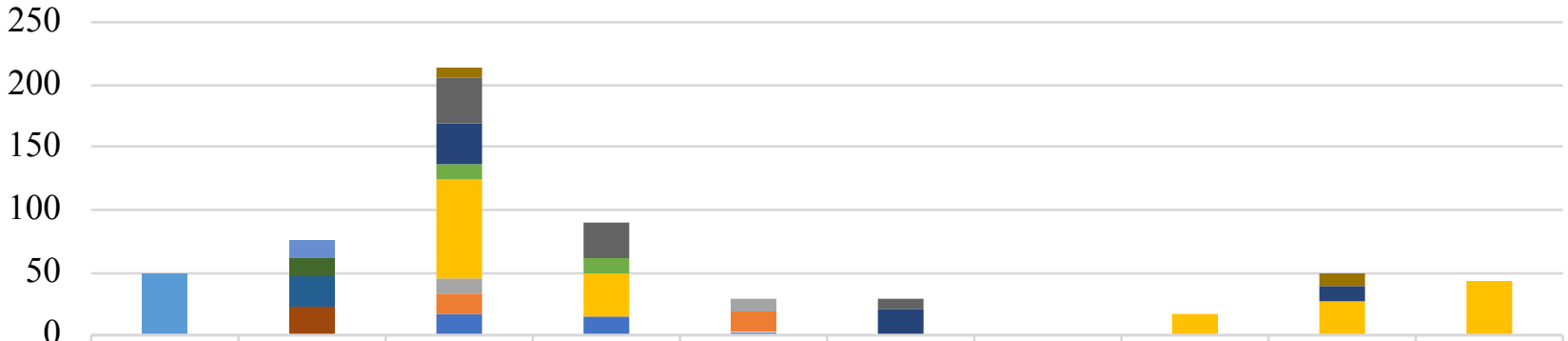
J3. Comparative Fixed-Wing Combat Aircraft Strength By Type, 2018



	Iran	Iraq	Saudi Arabia	UAE	Kuwait	Qatar	Oman	Bahrain	Israel
Azarakhsh	6								
Seagheh	6								
L-159		10							
F-4	64								
F-5	75							12	
F-7	24								
F-14	43								
F-15c/d/i/s			171						73
F-16		21		78			24	20	127
F-18					39				
F-35									9
Su-20/22	5								
Su-24	29								
Su-25	10								
Mig-21/U									
Mig-25		29							
Mig-29	36								
Mirage F-1E	10								
Mirage 2000				59		12			
Tornado IDS			69						
Tornado ADV									
Typhoon-2			71						

J4. Comparative Armed/Multirole Helicopter Strength, 2018



	Iran	Iraq	GCC	Saudi Arabia	Bahrain	Qatar	Oman	Kuwait	UAE	Israel
Mi-35M		13								
Mi-28NE/UB		15								
H135M		23								
Bell 412			9						9	
Bell 406CS			36	28		8				
Bell IA407		24								
AW139			33			21			12	
AS365N			12	12						
AH-1J	50									
AH-64A/D/E			79	35				16	28	43
AH-1F			12		12					
AH-1E			16		16					
AB-412			17	15	2					

Source: IISS Middle East Balance, 2018

J5: Iran: Reliance on Aging/Worn/Mediocre Systems – Air

Aircraft

FTR 184+: 20 F-5B *Freedom Fighter*; 55+ F-5E/F *Tiger* II 24 F-7M *Airguard*; 43 F-14 *Tomcat*; 36 MiG-29A/U/UB *Fulcrum*; up to 6 *Azarakhsh* (reported)

FGA 85: 64 F-4D/E *Phantom* II; 10 *Mirage* F-1E; up to 6 *Saegheh* (reported); 3 Su-22M4 *Fitter K*; 2 Su-22UM-3K *Fitter* G

ATK 39: 29 Su-24MK *Fencer* D; 7 Su-25K *Frogfoot* (status unknown); 3 Su-25UBK *Frogfoot* (status unknown)

ASW 5 P-3MP *Orion*

ISR: 6+ RF-4E *Phantom* II*

TKR/TPT 3: ε1 B-707; ε2 B-747

TPT 117: **Heavy** 12 Il-76 *Candid*; **Medium** ε19 C-130E/H *Hercules*; **Light** 75: 11 An-74TK-200; 5 An-140 (Iran-140 *Faraz*) *(*45 projected); 10 F-27 *Friendship*; 1 L-1329 *Jetstar*; 10 PC-6B *Turbo Porter*; 8 TB-21 *Trinidad*; 4 TB-200 *Tobago*; 3 *Turbo Commander* 680; 14 Y-7*;* 9 Y-12; **PAX** 11: 2 B-707; 1B-747; 4 B-747F; 1 *Falcon* 20; 3 *Falcon* 50

TRG 151: 25 Beech F33A/C *Bonanza;* 15 EMB-312 *Tucano*;15 JJ-7*; 25 MFI-17 *Mushshak*; 12 *Parastu*; 15 PC-6; 35 PC-7 *Turbo Trainer*; 9 T-33

Helicopters

MRH 2 Bell 412

TPT 34+: **Heavy** 2+ CH-47 *Chinook*; **Medium** 30 Bell 214C (AB-214C); **Light** 2+: 2 Bell 206A *Jet Ranger* (AB-206A); some *Shabaviz* 2-75 (indigenous versions in production); some *Shabaviz* 2061

Source: IISS Middle East Balance. pp 334-337. 2018

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J6: Iranian Aircraft Age and Service Years - I

Aircraft	Origin	Variant	Year Introduced	In Service	Notes
Combat Aircraft					
F-FB Freedom Fighter	USA	Multirole	1965	20	
F-5E/F Tiger II	USA	Attack	1974	55	
F-7M Airguard	China	Fighter	1986	24	
F-14 Tomcat	USA	Fighter/ Interceptor	1974	43	
MiG-29A/U/UB	Russia	Multirole	1991	36	
Azarakhsh	Iran	Attack	1997	6	Reverse-engineered Tiger II
F-4D/E Phantom II	USA	Fighter-Bomber	1968	70*	*6 configured for reconnaissance
Mirage F-1E	France	Fighter	1991	10	
Saegheh	Iran	Attack	2007	6	Reverse-engineered F-5
Su-22M4 Fitter K	Soviet	Fighter-Bomber	1990	3	
Su-22UM-3K Fitter G	Soviet	Fighter-Bomber	1990	2	
Su-24MK Fencer D	Soviet	Attack	1991	29	
Su-25K Frogfoot	Soviet	Attack	1991	7	
Su-25UBK Frogfoot	Soviet	Attack	1991	3	

Source: Jane's Sentinel Security Assessment - The Gulf States, 2018

J6: Iranian Aircraft Age and Service Years - II

Aircraft	Origin	Variant	Year Introduced	In Service
Maritime Patrol				
P-3MP Orion	USA	Maritime Patrol	1974	5
Tanker/ Transport				
B-707	USA	Transport/ Refueling	1974	3
B-747(F)	USA	Transport/ Refueling	1974	3
Il-76 Candid	Russia	Heavy Transport	1975	12
C-130E/H Hercules	USA	Transport	1970s	19
An-74TK-200	Soviet	Transport	1986	11
An-140	Soviet	Transport	2002	5
F-27 Friendship	Netherlands	Transport	1972	10
L-1329 Jetstar	USA			1
PC-6B Turbo Porter	Switzerland			10
TB-21 Trinidad	France			8
TB-200 Tobago	France			4
Turbo Commander 680	USA		1970s	3
Y-7	China			14
Y-12	China			9
Falcon-20	France			1
Falcon-50	France			3

Source: Jane's Sentinel Security Assessment - The Gulf States, 2018

J7: Iran Air Combat Modernization - I

Prior to the overthrow of the Shah in 1979, Iran was heavily reliant on the United States to provide combat aircraft for Iran's Air Force (IRIAF). Major procurements included the F-5A/B *Freedom Fighter*, the F-4D/E *Phantom II*, and the Grumman F-14A *Tomcat*. Since 1980, however, Iran has received few deliveries of new aircraft, relying on the sale of older aircraft from the former Soviet Union and China to rebuild airpower after the Iran-Iraq War depleted Iran's aircraft inventory. Iran's combat aircraft exports consisted of early export versions of the MiG-29A/U/UB Soviet combat aircraft, early export versions of the Sukhoi Su-24MK, the Su-25 anti-tank combat aircraft, the J-7 Airguard – a Chinese variant of the MiG-21 – and the unexpected delivery of fleeing Iraqi Mirage F-1E aircraft during the Gulf War.

The serviceability of many of these combat aircraft systems is unknown given their age and Iran's limited access to spare components due to a U.S. embargo and the unavailability of French equipment. Reports indicate that many F-4, F-5, and F-14s are unserviceable due to a lack of spare parts and wear, and because some have been cannibalized to provide parts for other aircraft.

These combat aircraft systems have serious issues competing with the far more modern aircraft in U.S., allied, and most local air forces. None of these systems can compare to Saudi F-15C/Ds, F-15S, Tornado IDS, and Typhoon EF-2000s. None of these systems compare to the UAE, which has the F-16E Block 60, F-16F Block 60, Mirage 2000-9DAD, Mirage 2000-9EAD, and Mirage 2000 RAD aircraft.

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 pursued four strategies to sustain the limited capabilities of its air force:

- First, Iran has invested in manufacturing reverse-engineered components and purchasing spare parts for its legacy aircraft through the black market, such as the F-4D/E, F-5E/F and F-14A aircraft in order to keep them operational despite a U.S. embargo.
- Second, Iran has invested in indigenous aircraft production efforts to supplement its aging fleet of foreign-built aircraft. In the early 2000s, Iran announced several new projects to domestically maintain and improve its air force inventory. Iran developed the *Azarakhsh*, a fighter with similar features to the F-5, and the *Saegheh*/ *Saegheh 2*, which are modelled on the twin seat F-5F operational trainer. In August 2018, it claimed to demonstrate a more advanced 4th generation fighter called the Kawsar. Iran has also outfitted aging aircraft systems with newer equipment including improved avionics and weapons delivery systems. For example, in 2013, Iranian F-4s and Mirage F-1s were equipped with domestically-produced Qadr ASCMs. It may also have reconditioned and modified 10 Su-22M4s out of a pool of 16-22 fighters than Iraq flew to Iran during the Iran-Iraq War.

J7: Iran Air Combat Modernization - II

- Third, Iran has improved its rocket, missile, and guided weapon systems to supplement the limited capabilities of its air force. Iran had increased the quantity of its missile arsenal and invested in qualitative improvements to its missiles' accuracy and lethality. Iran possesses the largest and most diverse missile arsenal in the Middle East, with thousands of short- and medium-range ballistic and cruise missiles. Missiles have become a central tool of Iranian long-range strike and A2/AD capabilities. Iran is seeking to equip some systems with cluster warheads and/or some form of improved precision strike guidance system. These systems could be a substitute for air power against critical point targets and could pose a serious threat if used in volleys on the defensive or against military & civilian targets.

Iran has also invested in unmanned aerial vehicle (UAV) deployment for low-cost ISR, battle management, and targeting capabilities. There is scant data available regarding Iranian UAV operational history and performance, so it is difficult to asses their capabilities in any kind of hypothetical conflict with enemy forces. 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. These pictures, however, do not show precision-guided munitions, rather these UAVs look to be equipped with unguided rockets and gravity bombs.

J8: Southern Arab Gulf Air Combat Modernization

The Arab Southern Gulf (GCC) states all operate more modern and advanced aircraft than Iran and have considerable capacity to make use of US ISR and battle management assets. They differ sharply in readiness and sustainment, pilot and aircrew quality, and ability to carry out joint or complex air operations. They also have have limits to their battle management and ISR capabilities. Many also have limited sustainability and large-scale exercise capability, and lack joint standardization and inoperability with neighboring forces, and rarely exercise together in effective, realistic, and complex air operations.

The **Saudi** military is by far the largest within the GCC. The Saudi Air Force maintains high quality equipment and facilities – such as airborne refueling capability, and ~365 combat capable aircraft including the Eurofighter Typhoon and F-15SA Eagle Strike fighter aircraft, F-15C/Ds, and Tornado IDS. However, its experience in complex operations is still moderate and the force is over-reliant on foreign technical support to manage and maintain complex operations.

The **Kuwaiti** Air Force went through intense modernization after the 1991 Gulf War, procuring US-manufactured equipment, most notably the F/A-18C/D 'Classic' Hornets and the AH-64D attack helicopter. Kuwait intends to procure F/A-18E/F 'Super' Hornets by 2022. Kuwait has also made efforts to become less dependent on US-manufactured equipment and technology by procuring 28 Eurofighter Typhoons through 2023.

Bahrain retains the smallest military force in the GCC. The Bahraini Air Force consists of a small fleet of American-made F-5E/F and F-16C/D *Fighting Falcon* aircraft. The RBAF can likely defend its national airspace for a limited time and provide support to the Royal Bahraini Naval Force against maritime threats. The aircraft require upgrade to avionics, sensors, and communication systems.

The **UAE's** Air Force is considered one of the best equipped in the region. The UAEs Air Force has seen near continuous operations since 2014, conducting strikes in Libya, Iraq, Syria, and Yemen, allowing them to increase their experience and optimize operational competence. Core armaments include the F-16 E/F *Fighting Falcon*, the most advanced F-16 currently in service, and the Mirage 2009/EAD.

The **Qatar** Emiri Air Force (QEAF) has a moderate level of air capability, possessing some fourth-generation fighter aircraft such as the Mirage 2000-5EDA. The Air Force has taken on a more expeditionary role, participating in patrol and strike missions in Libya, Yemen, and Syria to further Qatari objectives. The QEAF is undertaking several procurement initiatives that, combined with their late 2000 procurements of C-17s and C-130Js, will increase their capacity to conduct offensive operations. This includes plans to acquire F-15E Strike Eagles, Eurofighter Typhoons, and Rafales. These procurements, if successful, will allow Qatar the offensive and defensive capabilities to discard collective regional defense indicatives, and instead act on their own strategic interests.

The **Omani** Air Force maintains a small but well-trained and well-equipped inventory. The forces are in the process of recapitalizing core elements with air-system purchases. The air force has taken delivery of the last of a batch of F-16 Block 40s that have replaced the Jaguar and received the first of eight Hawk and 12 Typhoon aircraft.

J9: Iraq Air Combat Modernization

In the 1970s into the early 1980s, Iran had a significant air force, procuring aircraft such as the MiG-21, MiG-23BN, MiG-25, MiG-29, Tu-16, Tu-22, Su-7, Su-20, Su-25, and J-7 from the Soviet Union. During the 1980-1988 Iran-Iraq War, Iraq also received the first order of their 1977 Mirage F-1s. The air force continued to grow through the 1980s, procuring more aircraft from the Soviet Union and the French.

During the 1990 Gulf War, the U.S, UK, and allies overwhelmed the IQAF, destroying entire Iraqi airfields. Saddam Hussein ordered many Iraqi aircraft be sent to Iran to avoid coalition bombings. The Iranians accepted these aircraft and impounded them, refusing to return any as reparation for the Iran-Iraq War.

After the Gulf War, the IQAF inventory was depleted, limited to some Su-24, MiG-25 Mirage F-1s, MiG-23s, and Su-22s. International sanctions prevent Iraq from modernizing outdated systems. The IQAF was restricted by no-fly zones established by the coalition. The state of the Iraqi Air Force leading up to 2003 was deficient. Iraq was believed to have a range of 180-300 combat aircraft, although the effective combat capability of these aircraft was questionable.

During the 2003 invasion of Iraq, the IQAF played a negligible role. Following the re-establishment of the Iraqi Air Force (IQAF) in 2004, the force focused almost exclusively on supporting COIN activities – specifically, on providing close-air support and ground attack roles.

Following the loss of Iraqi territory to ISIS by 2014, the IQAF rushed to provide improved combat capability. The Su-25 ‘Frogfoot’ was brought into service in 2014, along with the ex-Czech L-159 light attack aircraft and F-16IQ fighters by 2016. The IQAF has been bolstered by the presence of the international coalition to fight ISIS.

J10: Israeli Air Combat Modernization

The Israeli Defense Force (IDF) is the most capable military force in the region. Iran maintains technological superiority, especially in missile-defense, precision-weapons, and combat aircraft. IDF pilots, crews, and equipment are trained and equipped to the highest standard and supported by highly effective C^4ISR. The force is in a constant state of readiness, and successfully integrates emerging advanced technology.

The IAF has worked to improve its coordination with other services in the Israeli army. Israel's ISTAR systems initially struggled to track Hezbollah rocket batteries in real-time during the 2006 conflict, raising questions about strategic planning and Israeli air operation priorities. Since 2006, the IAF has invested in increasing coordination with the IDF, showing relative success during operations in Gaza in 2014.

Israel has focused recent procurements on improving long-range strike capabilities, including the procurement of the F-35I aircraft, modern air refuelers, as well as the expansion of UCAV and long-range strike munitions. Israel maintains a significant inventory of modern combat aircraft, including the F-15I, and F-16A/B/I aircraft.

K. Land-Based Air/Missile Defense Force Modernization

Air Defense Modernization

As the following Figures show, the Arab Gulf states still seem to have a major advantage in deployed modern land-based air defense missiles, some of which have tactical anti-ballistic missile capabilities. This advantage is reinforced by the fact that the Arab Gulf states and the U.S. have a massive lead in air-to-air combat capability. There is no near-term prospect that Iran can cut this lead by manufacturing its own aircraft, and Iran's efforts to obtain large numbers of modern combat aircraft from Russia have so far failed to provide more than limited benefits. Moreover, the Arab Gulf states seem to still have an advantage in point and tactical missile defense capability. The U.S. has deployed cruisers equipped with Standard theater missile defense systems to the Gulf in the past, and several Arab Gulf states – notably Saudi Arabia, Qatar, and the UAE -- have also shown an interest in buying THAAD or Standard theater missile defense systems.

As has been discussed earlier, Iran has sought to counter these advantages in four ways:

- By using asymmetric warfare to counter the Arab Gulf and U.S. Advantage in conventional forces.
- By developing large ballistic and cruise missile forces, and long-range artillery forces, as a substitute for air power – and by seeking to develop a precision strike capability to increase their lethality using conventional warheads without having to rely on CBRN warheads.
- By retaining a chemical weapons option, creating a possible biological weapons program, and developing a nuclear weapons capability to at least the break out level, and,
- By modernizing its land-based air defense system with integrated sensors and C4I/battle management systems, developing its own air defense missiles, buying TOR-M short range air/cruise missile defense systems from Russia, and buying a full S-300 land-based air defense missile system with long-range low to high altitude capability and a potential capability for future upgrade to a theater missile defense capability.

Iran's Changing Capabilities

In the past, Iran has relied on a mix of fighters with older surface-to-air missiles deployed for defense of key target areas and linked with landlines to radar sensors. It has kept its F-14As flying and used their radars locally as "mini-AWACS" – although their full current mission capability is unclear. Iran has also taken delivery on the TOR-M and SA-24 Grinch Manpads, and has some capability to provide advanced point defense capability.

It sought the S-300 system from Russia for nearly a decade and finally obtained Russian consent to such a sale as a "defensive" system. A number of sources report that it began to take delivery on either

indigenous or imported modified versions of the S-300PMU2 (SA-20c Gargoyle) missiles in 2016; along with new Ghadir, Sepher, Fath 14, and Arash, radars; and more advanced C4I/battle management systems. Such a system could potentially be upgraded at some point in the future to include S-400 and "S-500" air and theater missile defense capabilities.

At this point in time, however, it is far from clear from open source literature what the real-world capabilities of the new Iranian "S-300," sensor, and battle management system will be, or what other upgrades will take place. Iran displayed a major new mobile air defense weapon with two launchers called the Bavar-373 on 21 August 2016, and it is investing in phased array radar development. Some analysts report the Bava-373 has a vertical, rectangular launch canister with a hot launch system. The system is reported to use a Sayyad-4missile, a Fakour command and control system that has links to passive, active, and phased radars like the Mersad, Binar, and Naza; and uses an advanced Rasoul communications system. At this point in time, however, it is far from clear from open source literature what the real-world capabilities of such new missiles system, sensors, and battle management systems will really be, or what upgrades will actually take place.

These uncertainties are compounded by speculation comparing the real-world performance of missile and air defense systems like the Patriot, S300, THAAD, and S400 whose real-world technical character and performance is not clear from open source data, and where performance data is often speculative and not verified by either tests or combat experience. This section cannot resolve these uncertainties, and it may be at least several years before enough reliable data are available at the open source level to clarify the full nature of this aspect of the regional arms race. One key problem is that it is far easier to draw circles estimating maximum air defense missile range and lethality than anything approaching a real-world picture of actual coverage at give altitudes against given air and missile threats, the impact of "stealth" and countermeasures, the nature of the C4I/BM systems and sensor nets, readiness capabilities, and virtually every other aspect of a full operational system.

The Equally Uncertain Future Arab Force Mix

It is equally unclear when and if the Arab Gulf states will buy and actually theater missile defense systems like THAAD, and whether such new systems will be properly integrated. There is an open-ended aspect to modernization in this part of the regional arms race, thagtiscompounded by uncertainty over the the level and timing of Iran's ability to give its conventionally armed missiles a precision strike capability, and/or whether Iran will actively deploy some form of CBRN warhead.

What is clear is that the present structure of *both* Arab Gulf land-based and air combat air defenses – and their use of their point/tactical missile defenses -- is seriously limited by petty feuding between the Southern Gulf states and the destruction of Iraq's system in 2003, and by a lack of integration at every level. In some ways, the Arab states are literally their own worst enemies.

Once again, the "glitter factor" has led to an emphasis on buying the most advanced systems, rather than the systems that can most effectively meet actually regional needs.

The Current Force Mix

The following Figures attempt to summarize the current state of force modernization:

- ***Figure K1:Comparative Land-Based Air Defense, 2018 (Iran, Iraq, Israel, Saudi Arabia)*** and ***Figure K2: Comparative Land-Based Air Defense, 2018 (other GCC States) Bahrain, Kuwait, Oman, UAE, Qatar)*** describes the national land-based air defense capabilities across the region.
- ***Figure K3: Iran Land-Based Air Defense Modernization*** describes the pace of Iran modernization. Iran has an extensive program to recondition, improve, and modify air defense missiles, but its claims are sometimes exaggerated or deliberately misleading. Some analysts have gone as far as to claim that Iran's claims to have its own S300 may really be reconditioned older S200s. Other Iranian produced or heavily modified systems include the Herz-9 (possibly an upgraded version of the French Crotale), Mersad or Kamin-2 (a reverse engineered Hawk), Sayyad-2 (a reverse engineered RIM-66),
- ***Figure J4: Iran: Reliance on Aging/Mediocre Systems – Air Defense*** summarizes Iran's current holdings. Major acquisitions include the S-200, S-300, and SA-24 *Grinch*. The Figure highlights Iran's increased focused on procuring increasingly sophisticated air defense systems in the last two decades.

K1:Comparative Land-Based Air Defense, 2018 (Iran, Iraq, Israel, Saudi Arabia)

Country	Major SAM	Light SAM	AA Guns	
Iran	Total: 237	Total: 514+	Total: 1,122+	
	32 S-300PMU2 (SA-20 *Gargoyle*) 10 S-200 *Angara* (SA-5 *Gammon*) 150+ MIM-23B I-*Hawk*/ *Shahin* 45 S-75 *Dvina* (SA-2 *Guideline*)	250+ FM-80 (*Crotale*) 29 9K331 *Tor*-M1 (SA-15 *Gauntlet)* 30 *Rapier* FIM-92 *Stinger* 9k32 *Strela*-2 (SA-7 Grail) 9k338 *Igla-S* (SA-24 *Grinch*) 9K36 *Strela*-3 (SA-14 *Gremlin*) *Misaq* 1 (QW-1 *Vanguard*) *Misaq* 2 (QW-18) HN-5A	ZU-23-2 23mm Oerlikon 37mm 100 ZSU-23-4 23mm 80 ZSU-57-2 57mm ZPU-2 14.5mm ZPU-4 14.5mm 300 ZU-23-2 23mm 92 *Skyguard* 35mm M-1939 37mm	50 L/70 40mm 200 S-60 57mm 300 M-1939 85mm
Iraq	Total:	Total:	Total:	
		24 96K6 *Pantsir*-S1 (SA-22 Greyhound) M1097 *Avenger* 9K338 *Igla*-S (SA-24 *Grinch*)	ZU-23-2 23mm S-60 57mm	
Israel	Total:	Total:	Total: 755+	
	MIM-104C *Patriot* PAC-2 24 *Arrow* 2 MIM 23-B I-*Hawk* *David's Sling*	*Iron Dome* 20 *Machbet* FIM-92 *Stinger*	150 ZU-23-2 23mm 455 M167 *Vulcan* 20mm/37mm M-1939 20mm/37mm TCM-20 37mm 150 L/70 40mm	
Saudi Arabia	Total: 417	Total: 400+	Total: 1,380+	
	108 MIM-104D/F *Patriot* Pac-2 GEM/Pac-3 128 MIM-23B I-*Hawk* 40 *Crotale* 73 *Shahine* 68 *Crotale*/ *Shahine*	400 M1097 *Avenger* *Mistral* FIM-92 *Stinger*	92 M163 *Vulcan* 20mm 30 M167 *Vulcan* 20 mm 130 M2 90mm 850 AMX-30SA 30mm 128 GDF Oerlikon 35mm 150 L/70 40mm (stored)	

Source: Adapted from the *IISS, Military Balance, 2018*.

K2: Comparative Land-Based Air Defense, 2018 (other GCC States) Bahrain, Kuwait, Oman, UAE, Qatar)

Country	Major SAM	Light SAM	AA Guns
Bahrain	Total: 6	Total: 7+	Total: 24
	6 MIM-23B I-*Hawk*	7 *Crotale* FIM-92 *Stinger* RBS-70	12 Oerlikon 35mm 12 L/70 40mm
Kuwait	Total: 40	Total: 24+	Total: 12+
	40 MIM-104D *Patriot* PAC-2 GEM	12 *Skyguard/ Aspide* *Starburst* 12 *Aspide* FIM-92 *Stinger*	12+ Oerlikon 35mm
Oman	Total:	Total: 62+	Total: 35
		8 *Mistral* 2 14 + FGM-148 *Javelin* 9K32 *Strela*-2 (SA-7 *Grail)* *40* Rapier	4 ZU-23-2 23mm 10 GDF-005 35mm (with *Skyguard*) 12 L/60 40mm (Towed) 9 VAB VDAA 20mm
UAE	Total:	Total: 50+	Total: 62
	MIM-23B I-*Hawk* MIM-104F *Patriot* PAC-3 6+ THAAD?	*Blowpipe* RBS-70 *Rapier* *Javelin* *Crotale* *Mistral* 50 96K6 *Pantsir*-S1 *9K38* Igla (SA-18 *Grouse*)	42 M3 VDAAA 20mm 20 GCF-BM2 30mm
Qatar	Total:	Total:	Total:
	MIM-104E *Patriot* PAC-2 GEM-T THAAD?	9 *Roland* II *Mistrale* *Blowpipe* FIM-92 *Stinger* 9k32 *Strela*-2 (SA-7 *Grail)*	

Source: Adapted from the *IISS, Military Balance, 2018.*

K3. Iran Land-Based Air Defense Modernization

1980 *Baseline*	*Rapier* and *Tigercat* SAM, HAWK SAM
1990 *Additions*	ZU-23 towed, ZSU-57-2 57mm, 85mm, SA-7
2000 *Additions*	MIM-23B I-*Hawk*/ *Shahin,* RBS-70, ZPU-2/-4, ZU-23-2 23mm, ZSU-23-4 23mm, M-1939, PRC Type 55, ZSU-57-2 57mm
2010 *Additions*	FM-80 (*Crotale*), HQ-2J, SA-5, FM-80, S-75 *Dvina* (SA-2 *Guideline*), S-200 *Angara* (SA-5 *Gammon*), 9K33 *Tor*-M1 (SA-15 *Gauntlet*), FIM-92A *Stinger*, Oerlikon 37mm, HQ-7, *Pantsyr* S-1E, ZU-23-2 23mm, *Skyguard* 35mm, L/70 40mm
2018 *Additions*	*Misaq* 1 (QW-1 *Vanguard*), *Misaq* 2 (QW-18), S-300PMU2 (SA-20 *Gargoyle*)

Iran's Current Inventory

Major SAM: 32 S-300PMU2 (SA-20 *Gargoyle*); 10 S-200 *Angara* (SA-5 *Gammon*); 150+ MIM-23B I-*Hawk*/ *Shahin*; 45 S-75 *Dvina* (SA-2 *Guideline*)

Light SAM: 250+ FM-80 (*Crotale*); 29 9K331 *Tor*-M1 (SA-15 *Gauntlet);* 30 *Rapier;* FIM-92 *Stinger;* 9k32 *Strela*-2 (SA-7 Grail); 9k338 *Igla-S* (SA-24 *Grinch*); 9K36 *Strela*-3 (SA-14 *Gremlin*); *Misaq* 1 (QW-1 *Vanguard*); *Misaq* 2 (QW-18); HN-5A

AA Guns: ZU-23-2 23mm; Oerlikon 37mm; 100 ZSU-23-4 23mm; 80 ZSU-57-2 57mm; ZPU-2 14.5mm; ZPU-4 14.5mm; 300 ZU-23-2 23mm; 92 *Skyguard* 35mm; M-1939 37mm; 50 L/70 40mm; 200 S-60 57mm; 300 M-1939 85mm

K4: Iran: Reliance on Aging/Mediocre Systems – Air Defense

Air Force Defense

SAM

Long-range 10 S-200 *Angara* (SA-5 *Gammon*); 32 S-300PMU2 (SA-20 *Gargoyle*)

Medium-range 195+: 150+ MIM-23B I-*Hawk*/*Shahin*; 45 S-75 *Dvina* (SA-2 *Guideline)*;

Short-range 279: 250 FM-80 (*Crotale*); 29 9K331 *Tor*-M1 (SA-15 *Gauntlet*) (reported)

Point-defense 30+: 30 *Rapier*; FIM-92 *Stinger*; 9K32 *Strela*-2 (SA-7 *Grail*)

Guns

TOWED 23mm ZU-23-2; **35mm** Oerlikon

Air-Launched Missiles

AAM • IR PL-2A‡; PL-7; R-60 (AA-8 *Aphid*); R-73 (AA-11 *Archer*); AIM-9 *Sidewinder;* **IR/SARH** R-27 (AA-10 *Alamo*); **SARH** AIM-7 *Sparrow*; **ARH** AIM-54 *Phoenix*†

ASM AGM-65A *Maverick*; Kh-25 (AS-10 *Karen)*; Kh-29 (AS-14 *Kedge*)

AShM C-801K

ARM Kh-58 (AS-11 *Kilter*)

Army Air Defense

SAM

Short-range FM-80

Point-defence 9K36 *Strela*-3 (SA-14 *Gremlin*); 9K32 *Strela*-2 (SA-7 *Grail*)‡*; Misaq 1* (QW-1 *Vanguard*); *Misaq 2* (QW-18); 9K338 *Igla-S* (SA-24 *Grinch*) (reported); HN-5A

GUNS

SP 180: **23mm** 100 ZSU-23-4; **57mm** 80 ZSU-57-2

TOWED 942+: **14.5mm** ZPU-2; ZPU-4; **23mm** 300 ZU-23-2; **35mm** 92 *Skyguard*; **37mm** M-1939; **40mm** 50 L/70; **57mm** 200 S-60; **85mm** 300 M-1939

Source: Adapted from the *IISS Middle East Balance*, pp 334-337, 2018

K5: Iran's "Quantum Leap" in Air Defense?

Some reports indicate that Iran may have acquired an "advanced" S-300PMU-2 variant, and an air-defense system more closely resembling the S-300PMU-3, otherwise known as the S-400.

The S-400 is potentially the most advanced serially produced air defense missile system in the world, claiming to rival or rivaling or surpass the American Patriot/ Pac-3 system in range and capacity and have substantially more missile defense capability.

Iran's operation of such an advanced air defense systems - capable of targeting aircraft and missiles at long ranges -- and equipped with some of the most effective anti-stealth systems in the world – could have critical implications for the regional balance, and the potential for the U.S. military to successfully engage some form of military action.

As noted earlier, open-source reporting varies sharply, but some military commentators have speculated the possibility that Iran's most advanced air defense capabilities resembles something closer to the S-400 than the S-300. Ultimately, what was delivered in 2016 remains unknown

The U.S. military, upon the S-300's delivery to Iran, stressed their ability to deploy advanced stealth aircraft (including the B-2 Spirit stealth bomber and F-22 Raptor) would allow the U.S. military to neutralize Iran's air defense if required.

If Iran should field a system as sophisticated as the S-400 with advanced anti-stealth systems, this open might be be sharply more limited . The effectiveness of the S-400's stealth detection capability is unknown, but there is genuine concern among commentators that the S-400 could sharply limit the value of "stealth" in a combat aircraft like the American F-35 or Chinese J-20.

L. Naval Force Modernization

Naval Force Modernization

Major naval operations in the Gulf region are likely to be joint naval-air-missile operations, and the ability of Iran's larger surface vessels to survive under such conditions is doubtful. The U.S. Navy and Air Forces, and Southern Arab Gulf air forces should be able to locate and destroy Iran's large surface forces quickly unless they disperse deep into Indian Ocean. At the same time, Iran may be able to exploit its land and air-based anti ship missiles, submarines, smart mines, and missile/suicide small craft – dispersing and moving forces that are far harder to locate and attack.

Iran, Iraq, and the Southern Arab Gulf states do, however, maintain and modernize the large ships in their surface fleets. They can be used to threaten and intimidate at lower levels of escalation, and they are another key element of the regional military balance. They include conventional major naval systems (frigates, corvettes, destroyers, submarines), as well as naval forces best suited for asymmetric warfare, such as patrol and coastal combatants, fast attack craft, midget submarines, hovercraft, and mine-laying vessels.

Iran seems to rely largely on asymmetric naval systems. It possesses the largest inventory of patrol and coastal combatants, submersibles, land-base anti-ship missiles, and mine warfare capabilities. It continues to steadily improve its capabilities to use such "asymmetric" forces to threaten Gulf shipping and offshore oil facilities, islands, and coastlines. It can also use such forces to harass or threaten larger craft such as tankers and aircraft carriers. Iran has not, however, focused much effort to act as a blue-water navy.

- ***Figure L1: Total Naval Forces, 2018*** displays naval force inventories across the region. The Figure show that Iran maintains a a large inventory of missile patrol and other patrol craft. It also shows that the Southern Arab Gulf navies have larger forces of major surface ships, but few mine warfare forces and forces designed to fight the Iranian asymmetric threat. Iraq has negligible naval forces.
- The Arab Gulf states would, however, probably have the benefit of major U.S. and European sea-air-missile power projection forces, and IS&R and battle management capability.
- ***Figure L2: Naval Modernization: Larger Ships 1975-2018*** shows major ship modernization efforts across the region from 1975 to present day. The table indicates that Iran has been very slow to procure naval combat ships such as frigates, corvettes or destroyers. It did, however, 3 Kilo-class submarines from Russia to Iran in the 1990s, has update the combat systems on several of its larger surface ships, and is seeking to build its own larger surface ships.
- Southern Arab Gulf states have steadily procured major naval ships in the last three decades, though these procurement effort should not be overstated. Saudi Arabia in particular has been slow to create a suitable mix of both Gulf and Red Sea forces.

- The readiness and training capability of such forces is often poor to mediocre, and joint warfare capabilities and training is uncertain.

- ***Figure L3: Asymmetric Naval Modernization 1975-2018*** focuses on sea-based asymmetric naval modernization efforts from 1975 to present day. It is clear that Iran has focused on boosting its asymmetric naval capabilities.

- Since the end of the Iran-Iraq War, Iran has obtained new anti-ship missiles and missile patrol craft from China, midget submarines from North Korea, submarines from Russia, and modern mines. Iran has expanded the capabilities of the naval branch of the IRGC. Iran depends heavily on its ability to use anti-ship missiles to make up for its lack of airpower and modern major surface vessels.

- Iran's forces are armed with long-range, land-based anti-ship missiles, air launched anti-ship missiles and a growing range of Iranian developed systems. Iran often make exaggerated claims about ship launched prototypes, but HIS Jane's indicates that Iran's newer real world systems seem to include the Hormuz 2 radar guided system; Nasr/Nasr e-Basir radar, TV, electro optical-guided system based on the Chinese C-704/C-704KD; Khalij Fars anti-ship ballistic missile with a range of 150-300 kilometers, Zafar short-range, radar guided anti-ship cruise missile for fast attack craft; Ghadir anti-ship cruise missile based on the Chinese C804 with a range of 200 kilometers, the Ya Ali cruise missile based on the Chinese C602 and YJ-62 with a range of up to 700 kilometers.

- Iran is also developing its own torpedoes and smart mines. Its smart mines can be dropped or "laid" by any form of ship including dhows. No reliable unclassified data seems to exist on current developments and types. Arab Southern Gulf, and U.S./European mine warfare systems have not performed well in exercises designed to detect and counter such forces.

- ***Figure L4: Iran: Reliance on Aging/Mediocre Larger Naval Systems versus More Modern Asymmetric Forces*** highlights the Iranian emphasis on asymmetric naval forces, and the key role of the Naval Branch of the Islamic Revolutionary Guards Corps (IRGC) In contrast, the Southern Arab Gulf navies have poor mine warfare capabilities, and uncertain training in dealing with Iranian asymmetric attacks.

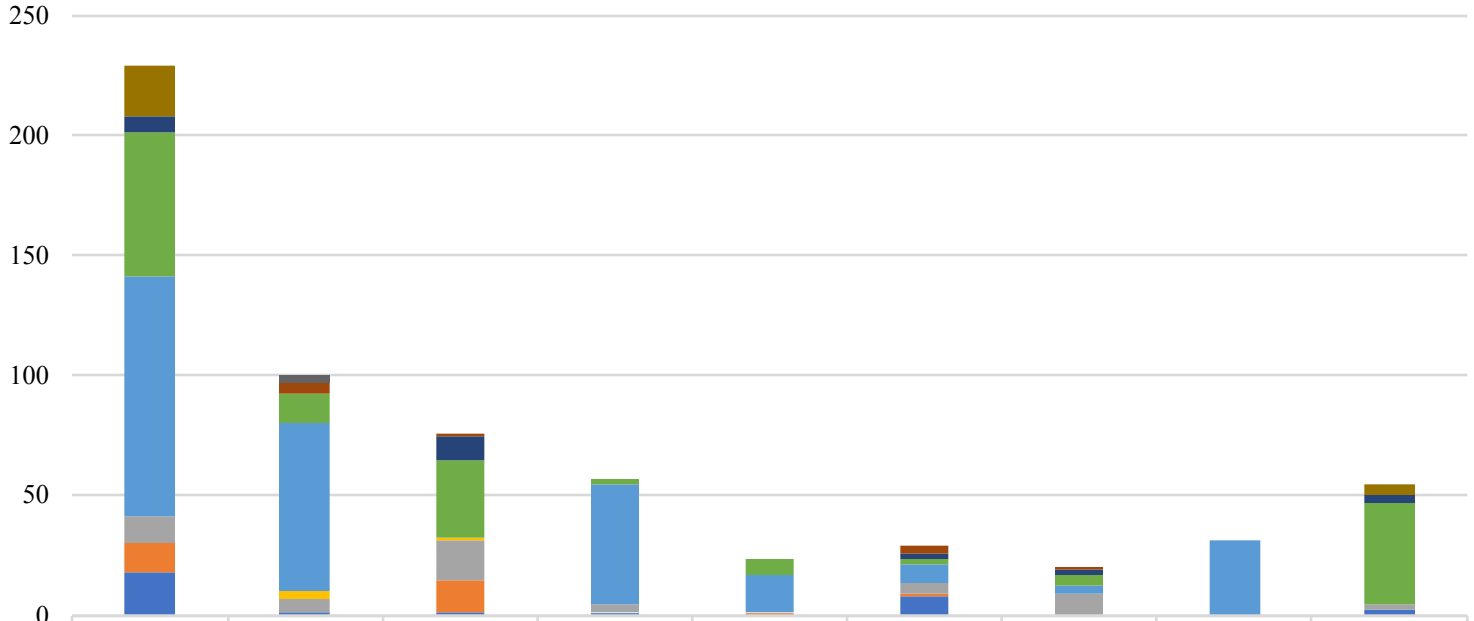
- ***Figure L5: Naval Combat Helicopters*** highlights the Southern Arab Gulf advantage in naval aviation and specialized naval helicopters. Iran does, however, have maritime patrol aircraft, and its air force has anti-ship missiles. The Arab Gulf navies have not integrated their naval surveillance efforts,

- ***Figure L6: Key Naval Operating Areas in and Near the Gulf:*** Iran could deploy its naval forces and disrupt the movement of tankers through the Strait of Hormuz, through which up to 40% of the world's oil supplies pass. Iran's asymmetric naval capabilities

- give the regime the ability to threaten disruption to global energy markets. Iran's IRIN and IRGCN would likely use a combination of small, hard-to-detect, high speed craft armed with anti-ship missiles or high explosives in their fronts, midget submarines, torpedoes, UCAVs, and suicide boats to swarm enemy warships and overwhelm ship defenses. Iran's options include include maritime guerrilla hit and run attacks, while anti-ship missiles could be launched from shore and surface platforms. Overwhelming use of such means could damage or destroy opposing warships in the Strait of Hormuz.

- ***Figure L7: Broader Naval Operating Areas Near the Gulf:*** Iran's submarines and larger naval vessels could operate outside the Gulf and in the Red Sea for at least a limited period of days, and IRGC forces might stage out of Yemen if the Houthi forces come to dominate that country.

L1: Total Naval Forces, 2018



	Iran	Saudi Arabia	UAE	Kuwait	Qatar	Oman	Bahrain	Iraq	Israel
Submarines	21								5
Destroyers		3							
Frigates		4	1			3	1		
Corvettes	7		10			2	2		3
Missile Patrol	60	13	32	2	7	3	4		42
Other Patrol	100	70		50	16	7	4	32	
Mine		3	2						
Landing Craft	11	5	16	4		5	9		2
Amphibious Ships	12		13		1	1			
Support	18	2	2	1		8			3

Source: Adapted from the *IISS Middle East Balance, 2018*

L2: Naval Modernization: Larger Ships 1975-2018

	Iran	GCC	Israel	Iraq
1975 *Baseline*	3 Destroyers w Standard SSM (1 ex-Br, 2 ex-US), 4 Saam Frigates, 4 ex-US PF-103 Corvettes	No new systems observed	No new systems observed	No new systems observed
1980	No new systems observed	No new systems observed	No new systems observed	No new systems observed
1985	No new systems observed	4 Madina F-2000 Frigates, 4 PGG-1 Corvettes	6 Aliya (Sa'ar-4.5) Corvettes	No new systems observed
1990	No new systems observed	2 Muray Jip (Ge Lurssen 62-m) Corvettes, 2 Al Manama (Ge Lurssen 62-m) Corvettes	3 Gal (UK Vickers) Subs	1 Ibn Marjid (ex-Khaldoum) Frigate
1995	3 Sov Kilo-class subs	No new systems observed	1 Eilat (Sa'ar 5) Corvette	No new systems observed
2000	2 inshore subs	2 Abu Dhabi FFG Frigates, 1 Sabha (US OH Perry) FFG Frigate	2 Dolphin (Ge Type 212 variant) subs	No new systems observed
2005	Data unavailable	Data unavailable	Data unavailable	Data unavailable
2010	SSW: 11 Qadir subs, 1 Nahang sub; SDV: 5 Al Sabehat, 3 other	3 Al Riyadh Destroyers, 10 Submarines/ swimmer delivery vehicles; 1 Baynunah FSGHM Corvette	No new systems observed	No new systems observed
2018	No new systems observed	5 Baynunah FSGHM Corvette, 2 Ganthoot FSGM Corvette	2 Tanin (GER HDW design with AIP) SSK subs, 2 Eilat (Sa'ar 5) FSGHM Corvette	No new systems observed

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L3: Asymmetric Naval Modernization 1975-2018

	Iran	Saudi Arabia	UAE	Qatar	Israel	Kuwait	Iraq	Bahrain
1975	25 Patrol Boats, 6 Minesweepers: 2 Shahrokh MSC, 2 Riazi MSI. 2 Landing Craft, 8 SR-6 and 4 Wellington BH-7 Hovercraft	3 Jaguar-class FPB, 1 ex-US PB	3 patrol craft, 6 patrol boats	4 coastal patrol craft	2 submarines, 2 Reshef-class FPB, 12 Saar-class FPB, 6 motor torpedo boats, 30 small patrol boats, 10 landing craft	12 inshore patrol boats, 15 patrol launches, 2 landing craft	3 SOI submarine chasers, 8 Osa-class FPB with Styx SSM, 13 P-6 torpedo boats, 2 minesweepers, 3 patrol boats	2 police patrol launches
1980	9 Kaman FAC(M) with Harpoon SSM, 7 large patrol craft (3 improved PGM-71, 4 Cape), 3 ex-US coastal, 2 inshore minesweepers, 2 BH-7 hovercraft	72 coastal patrol craft, 4 MSC-322 coastal minesweepers, 2 ex-US LCM, 4 ex-US LCU, 8 SRN-6 Hvrcrft, 70 small patrol boats	6 Ban Yas (Lurssen TNC-45) FAC(g), 6 Vosper Thornycroft large PC, 3 Kieth Nelson coastal PC	25 coastal patrol craft, 6 Vosper Thornycroft large patrol craft	3 Type 206 submarines, 8 Reshef-class with Gabriel and Harpoon SSM, 35 Dabur coastal patrol craft, 3 ex-US PBR coastal patrol craft, 3 ex-us LCM, 6 LCT, 3 Westwind 1124N MR AC	16 coastal patrol craft, 1 landing craft	4 ex-Sov FAC(m), 10 ex-Sov patrol boats, 3 ex-Sov minesweepers: 2 T-43 ocean, 3 Yevgenya inshore, 4 ex-Sov Polnocny LCT	2 TNC-45 FAC(m), 2 Lurssen 38-meter FAC(G), 14 coastal patrol craft, 1 hovercraft, 2 landing craft
1985	No new systems observed	9 Al Siddiq (US 58m) PFM	No new systems observed	3 Damsah Fr Combattante IIIB FAC(g), 12 coastal patrol craft	6 Sa'ar III FAC(g), 6 Sa'ar II FAC(g), 1 Dvora FAC(g), 2 Shimrit (Plafgstaff 2) FAC(g), 1 Snapirit FAC(g), 6 Yatush PC, 7 Seascan 1124N	6 Lurssen TNC-45 FAC(g), 34 coastal patrol craft, 6 Loadmaster LCU	3 SO-1 large patrol craft	No new systems observed
1990	Patrol and Coastal Combatants: 33 (missile craft: 10, patrol inshore: 23, mine warfare: 3, amphibious: 10); Patrol Inshore: 3 Kaivan, 3 Parvin PCI, 3 Chaho PFI; Amphibious: 4 Hengam LST, 3 Iran Hormuz 24 LST, 2 Iran Ajr LST, 1 Foque LHA, plus 3 LCT	2 Al Jawf (UK Sandown MCC)	2 Mubarraz (Ge Lurssen 50-m) MC, 3 Kawkab PCI	6 Barzan (UK 33-m) PCI, plus 44 small craft operated by marine police, 1 LCT	2 Aliya PFM, 3 Romat PFM, Some 40 Super Dvora/ Dvora/ Dabur PFI	No new systems observed	No new systems observed	4 Ahmed el Fateh (Ge Lurssen 45-m) missile craft, 2 Al Riffa (Ge Lurssen 38-m) PFI
1995	Patrol and Coastal Combatants: 48 (missile craft: 20, patrol inshore: 26, MCM: 7, Amphibious: 8); 10 Houdong PFM; MCM: 3 Shahrokh MSC, 3 Riazi MSI, 1 Polnochny LSM	17 US Halter Marine PCI, plus 40 craft, 8 Hovercraft, 350 armed boats	3 Al Feyi LCT, 1 LCM	No new systems observed	1 Hetz (ex-Nirit) PFM	1 Istiqal (GE Lurssen FPB-57) missile craft, 4 Inttisar (Aust 31.5m) PFI inshore patrol craft	1 Sov Bogomol PFI patrol inshore combatant, 3 SRN-6 hovercraft,1 Aka (Yug Spasilac-class AR)	No new systems observed
2000	Patrol and Coastal Combatants: 63; Patrol Inshore: 3 Zafar PCI, 200+ small craft; IRGC: 40 Swe Boghammer Marin boats, 10 Hudong	1 Al Jawf (UK Sandown MCC),	No new systems observed	No new systems observed	No new systems observed	6 Um Almaradim PFM (FR P-37 BRL) missile craft, 1 Sanbouk (Ge Lurssen TNC-45) PFM missile craft, 2 Al Shaheed PCC, plus 30 small boats	2 Nestin MSI MCM 1 Damen AG support craft	2 Swift FBP-20 PCI, 4 Ajeera LCY-type spt
2005	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
2010	IRIN: Patrol and Coastal Combatants: 68; 4 Mk 13, 4 China Cat, 15 Kashdom II, 3 Kayvan, 6 MkII, 10 MkIII, 3 Kajami; 2 Type-292 MSC, 3 Farsi LSM; IRGC Patrol and Coastal Combatants: 95; 5 China Cat, 10 Thondor, 25 Peykaap II, 15 Peykaap 1, 10 Tir, 10 Pashe, 20 Ghaem, 2 Hejaz, 2 MIG-S-500	No new systems observed	2 Al Murjan (Frankenthal class Type 332) MHO	3 Q-31 series PB	7 Hetz (Sa'ar 4.5) PCGM, 4 Shaldag PBF, 3 Stingray PBF	1 Al Nokatha (US MK V Pegasus) PBF, 1 Sawahil AG	1 Riverhawk PCO, 9 Swiftship PB, 5 Predator (PRC-27m) patrol craft inshore, 3 Al Faw patrol craft,2 Type-200 PBR, 4 Type-2010 PBR	No new systems observed
2018	IRIN Patrol and Coastal Combatants: 67; PBG: 3 Hendijan; PBF: 1 MIL55; PB: 9 C14 IRGC: Patrol and Coastal Combatants: 126; PBFG: 5 C14, 10 MK13, 6 Zolfaghar; PBF: 15 Kashdom II	No new systems observed	12 Butinah (Ghannatha mod) PBFG, 6 Ghannatha with 120mm mor, 6 Ghannatha PBF	3 MRTP 16 PBF,4 DV 15 PBF, 4 Crestitalia MV-45 PB, 3 Halmatc M160 PB	No new systems observed	9 Al Noktha (US MK V Pegasus) PBF,	1 Al Basra (US River Hawk) PCO, 4 Fateh (ITA Diciotti) PCC, 3 Swiftships 35,	2 Al Manama (GER Lurssen 62m) FSG, 2 Al Jarim (US Swift FBP-20), 2 Al Riffa (Ger Lurssen 38m)

L4: Iran: Reliance on Aging/Mediocre Larger Naval Systems versus More Modern Asymmetric Forces

Submarines SSK 3 *Taregh* (RUS *Paltus* Project-877EKM) with 6 single 533mm TT
SSC 1 *Fateh* (in trials)
SSW 17: 16 *Qadir* with 2 single 533mm TT with *Valfajar* HWT (additional vessels in build); 1 *Nahang*

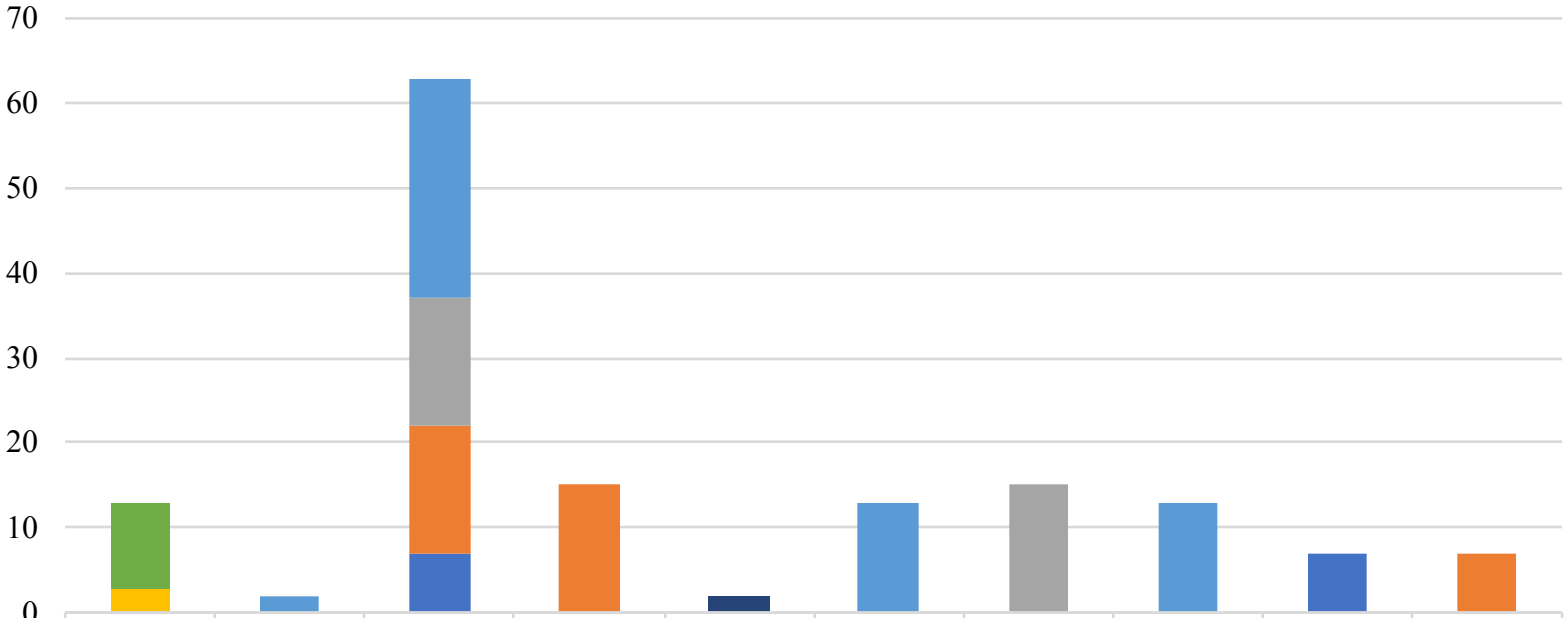
Coastal combatants
FSGM 2 *Jamaran* (UK Vosper Mk 5 derivative – 1 more undergoing sea trials) with 2 twin lnchr with C-802 (*Noor*) (CH-SS-N-8 *Saccade*) AShM, 2 single lnchr with SM-1 SAM, 2 triple 324mm Mk32 ASTT, 1 76mm gun, 1 hel landing platform
FSG 3 *Alvand* (UK Vosper Mk 5) with 2 twin lnchr with C-802 (CH-SS-N-8 *Saccade*) AShM, 2 triple Mk32 324mm ASTT, 1 114mm gun 2 *Bayandor* (US PF-103) with 2 twin lnchr with C-802 (CH-SS-N-8 *Saccade*) AShM, 2 triple 324mm Mk32 ASTT, 1 76mm gun

Patrol Combatants
PCFG 13 *Kaman* (FRA *Combattante* II) with 1–2 twin lnchr with C-802 (*Noor*) (CH-SS-N-8 *Saccade*) AShM, 1 76mm gun
PBG 3 *Hendijan* with 2 twin lnchr with C-802 (*Noor*) (CHSS- N-8 *Saccade*) AShM 3 *Kayvan* with 2 single lnchr with C-704 (*Nasr*) AShM 3 *Parvin* with 2 single lnchr with C-704 (*Nasr*) AShM
PBFT 3 *Kajami* (semi-submersible) with 2 324mm TT
PBF 1 MIL55
PB 34: 9 C14; 9 *Hendijan*; 6 MkII; 10 MkIII

IRGC Patrol and coastal combatants
PBFG 5 C14 with 2 twin lnchr with C-701 (*Kosar*)/C-704 (*Nasr*) AShM 10 Mk13 with 2 single lnchr with C-704 (*Nasr*) AShM, 2 single 324mm TT 10 *Thondor* (PRC *Houdong*) with 2 twin lnchr with C-802A (*Ghader*) AShM, 2 twin AK230 CIWS 25 *Peykaap* II (IPS-16 mod) with 2 single lnchr with
C-701 (*Kosar*) AShM/C-704 (*Nasr*), 2 single 324mm TT 6 *Zolfaghar* (*Peykaap* III/IPS-16 mod) with 2 single lnchr with C-701 (*Kosar*)/C-704 (*Nasr*) AShM
PBFT 15 *Peykaap* I (IPS -16) with 2 single 324mm TT
PBF 35: 15 *Kashdom* II; 10 *Tir* (IPS-18); ε10 *Pashe* (MIG-G-1900)
PB ε20 *Ghaem*

Source: IISS Middle East Balance. pp 334-337. 2018

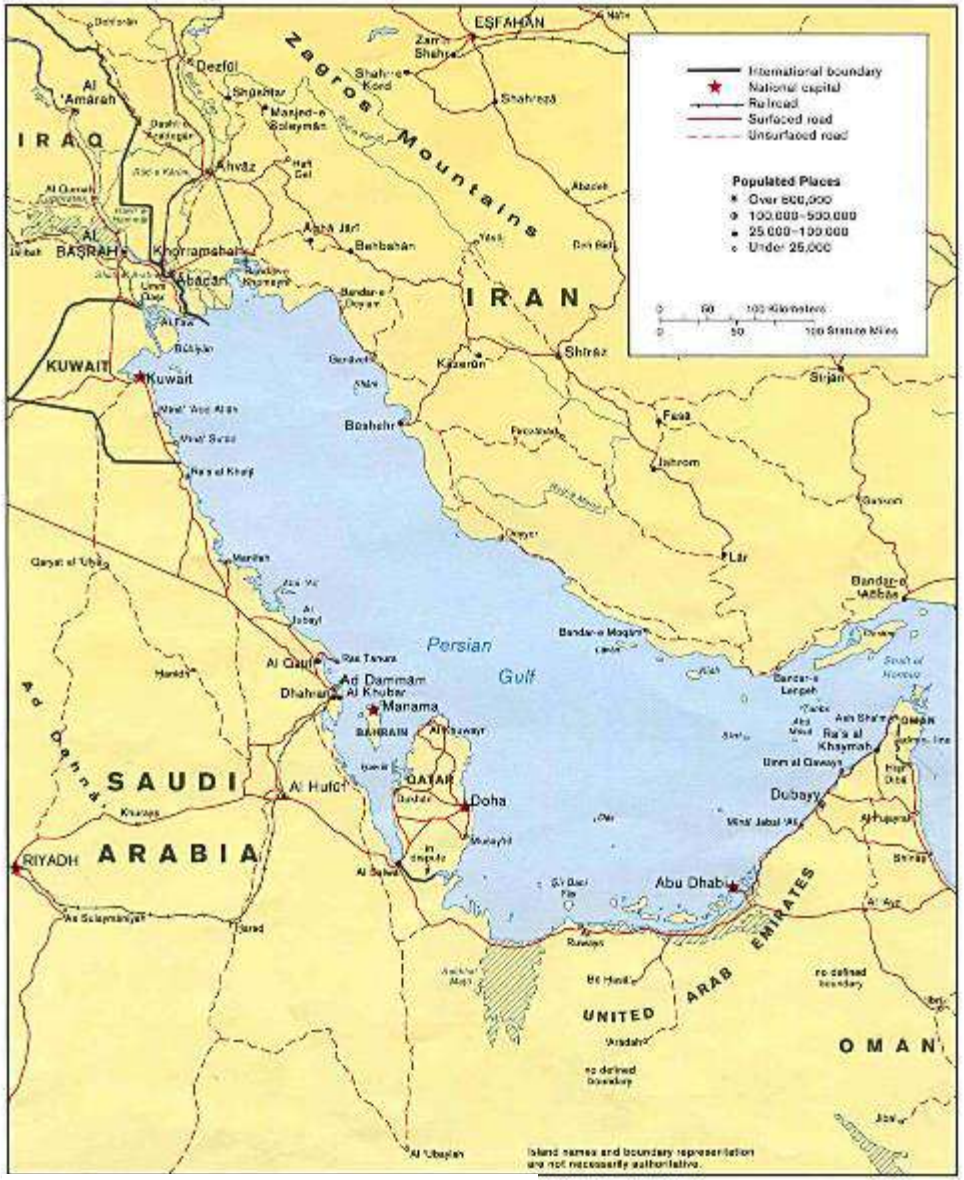
L5: Naval Combat Helicopters



	Iran	Iraq	GCC	Saudi Arabia	Bahrain	Qatar	Oman	Kuwait	UAE	Israel
Bo-105					2					
SH-3D	10		0							
SA341/2L		2	26			13		13		
RH-53D	3		0							
Mk300			15				15			
AS565			15	15						7
AS332F			7						7	

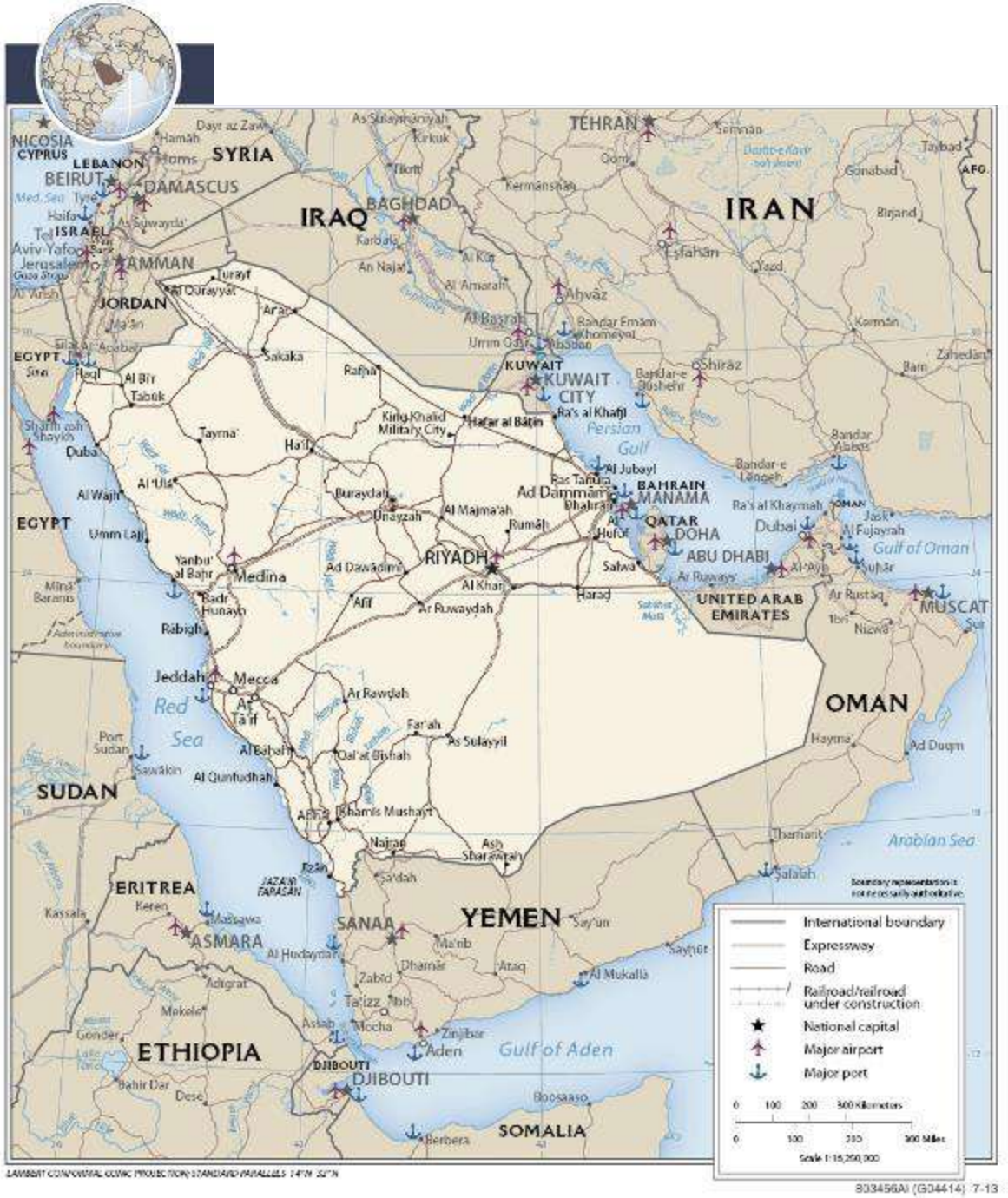
Source: Adopted from the IISS, Military Balance, 2018.

L6: Key Naval Operating Areas in and Near the Gulf



Source: Google, CIA and EIA

L7: Key Naval Operating Areas in the Arabian Peninsula, Gulf of Oman, Indian Ocean, and and Red Sea Areas



Source: Google, CIA and EIA

L8: Qatar, Saudi Arabia and the UAE: Expanding Naval Horizons

The navies of the GCC have traditionally been small and focused mainly on coastal defense. Some GCC countries have begun to develop an expeditionary maritime capability. Qatar, Saudi Arabia, and the UAE are spending billions of dollars on new platforms capable of providing a blue-water presence. However, unless many more billions are spent on sustainment, training, operations, and personnel, and the ships are fitted into a wider strategy, the GCC will remain a largely littoral force with very expensive patrol ships.

Most importantly, it is far from clear that these buys meet the Arab Gulf's needs to deter and defend against Iran's asymmetric mix of naval-missile-air forces.

- **Qatar:** Since 2013, Qatar has been buying high-end Western equipment on a significant scale. The Qatari's largest vessels are now Barzan-class missile craft, built in the 1990s. It did, however, sign a 2016 agreement to acquire four corvettes, two OPVs, and an LPD. While Qatar may find it difficult to find personnel to operate these new vessels, it might hire foreign nationals, which would give it more capability to deter both Iran and its Saudi and UAE neighbors.

- **Saudi Arabia**: Saudi Arabia's fleet is the largest in the GCC, with seven frigates and a pair of replenishment vessels. It signed contracts signed in 2018 for US and Spanish frigates that will increase the size of its fleet, but these are not accompanied by ordering for logistics ships that would allow them to operate at length in the Indian Ocean.

- **UAE:** Of the six GCC nations, the UAE has the largest and most significant sealift capability. The UAE has been suppling its own forces by sea, and those of other nations, since the beginning of the Saudi-led intervention in the Yemen conflict in 2015. Though the UAE has the funds to acquire high-end equipment, the navy is constrained by its size. With just a few thousands sailors, the UAE navy would have difficult finding crew for new frigates, fleet-replenishment vessels, and large amphibious platforms, as well as sustain operations beyond the Horn of Africa.

Source: Waldyn, Tom. IISS Military Balance+. October 26, 2018.

L9: GCC: Blue-Water Surface Combatant & Expeditionary Naval Platforms

Country	Frigate	Landing Ships*	Landing Craft*	Fleet-Replenishment Ships
Bahrain	1 Sabha (ex-US Oliver Hazard Perry	-	7 LCM	-
Kuwait	-	-	1 LCM	-
Oman	3 Al-Shamikh	1 LST (serviceability in doubt)	-	-
Qatar	-	-	-	-
Saudi Arabia	3 Al-Riyadh (La Fayette mod) 4 Madina (F-2000)	- -	3 LCU 2 LCM (est.)	2 X Boraida (Durance mod)
UAE	1 Abu Dhabi	2 LST	10 LCT 5 LCM	-

Source: Waldyn, Tom. IISS Military Balance+. October 26, 2018.

L10: GCC Procurement: Ongoing Contracts for Principal Surface Ship Combatants and Amphibious Vessels

Country	Class	Type	Quantity	Value	Shipyard	Order Date
Qatar	*Doha*	FFGHM	4	-	-	-
	OPV	FSGM	2	5.59bn	Fincantieri (ITA)	2017
	Kalaat Beni Abbes mod	LHD	1	-	-	
Saudi Arabia	Multi-Mission Surface Combatant (*Freedom* LCS mod)	FFGHM	4	6bn	Marinette Marine (US)	2018
	Avante 2200 mod	FFGHM	4	2.12bn	Navantia (ESP)	2018

Source: Waldyn, Tom. IISS Military Balance+. October 26, 2018.

M. Missile Force Modernization

Missile Force Modernization

Missile forces can supplement air, sea, and land power; compensate for weaknesses in airpower and maneuver forces; and provide a means of leap frogging to more advanced forms of war. In the case of Gulf forces, missile forces are performing all three roles. They are also an area where Iran has a significant lead, although much of the open source data may exaggerate Iran's missile holdings and ignores its lack of lethality against point targets and critical military and civil facilities.

In the case of the Southern Arab Gulf states, their missile forces provide aircraft and ship launched long-range range and precision strike capability with conventional warheads using systems like Storm Shadow, SLAM, Exocet, RQ-1 Predator, and Harpoon, with orders of newer systems like the Joint Stand-Off Weapon (JSOW) Saudi Arabia is the only power with long-range ballistic missiles, although a number of powers are exploring cruise missile options.

In the case of Iran, Iran has tried to compensate for its failure to modernize many of its major weapons systems by creating the largest and most diverse missile arsenal in the Middle East, with thousands and short and medium-range ballistic and cruise missiles capable of striking targets as far as Israel and southeast Europe. Missiles have become a central tool of Iranian power projection and anti-access/ area-denial capabilities in the face of U.S. and Southern Arab naval and air power in the region.

While Iran has not yet tested or deployed a missile capable of striking the United States, it continues to develop longer-range missile technologies under the auspices of its space-launch program. In addition to increasing the quantity of its missile arsenal, Iran has also become a center for missile proliferation, supplying proxies such as Hezbollah and Syria's al-Assad regime with a steady supply of missiles and rockets, as well as local production capability. Furthermore, Iran is likely supplying Houthi rebel groups with short-range missiles in the ongoing conflict in Yemen.

Iran now only seems to arm its missiles with conventional warheads. Such missiles would only have the lethality of even one conventional laser-guided bomb even if they were accurate or lucky enough to hit a point target. However, Iran is the only Gulf power that is a declared chemical weapons state, that has a well-developed nuclear program that has brought it to the edge of actual ability to produce nuclear warheads, and that may have an advanced biological weapons program.

At present, most of Iran's missiles lack the accuracy/reliability and precision targeting capability to achieve significant lethality against most forms of point target – economic, infrastructure, energy, or military. Even if Iran fires volleys of missiles, its is unlikely to inflict severe damage on any major target except by sheer luck. Iran is, however, beginning to deploy precision guided ballistic missiles and cruise missiles, and this could substantially offset its weaknesses in airpower or even give it an advantage overtime.

Neither side currently has a major lead in missile defense, although the Arab Gulf states do have significant point defense capabilities using the PAC-2 and PAC-3, and several have placed orders or are taking delivery on the THAAD theater missile defense system and/or considering the Standard/Aegis and S-400.

The Southern Arab Gulf states have explored options for an integrated missile defense system through the Gulf Cooperation Council, bought point or limited coverage missile defense systems like the Patriot PAC-2 and PAC-3, and explored national purchase of theater missile defense systems like the Russian S400 as well as the U.S. THAAD (endoatmospheric) and AEGIS (exoatmospheric). Their actual plans remain uncertain, but the UAE is taking delivery on two THAAD batteries and AN/TPY-2 X-band radars, Qatar has ordered THAAD, and Saudi Arabia is acquiring advanced radars with missile defense capabilities.

As noted earlier, Iran's acquisition of the Russian S300 land-based air defense system gives it a path towards the creation of a theater missile defense system based around the S400 and developmental "S500."

- ***Figure M1. Southern Arab Gulf State Tactical Missile Inventories*** serves as a reminder that Southern Arab Gulf forces have a wide range of tactical missiles – many superior in performance to those held by Iran.
- ***Figure M2: Saudi and UAE Missile Inventories*** focuses on the missile and precision weapons holding of Saudi Arabia and the UAE, the two key states with missile forces. It does not address the missile defense plans of these states, which are influx. Qatar, Saudi Arabia, and the UAE have all, however, taken steps to develop national, missile defenses. Saudi Arabia has reported numerous PAC-2 intercepts of Scud-like missiles fired by the Houthi in Yemen. Some seem to have been confirmed.
- Saudi Arabia is the only Southern Arab Gulf state to now have long range, land-based ballistic missiles – Iraq lost all of its holdings after the 1990-1991 Gulf War. Reports differ as to Saudi holdings. HIS Jane's reports that the Saudi Air Force has some 50 Chinese CSS-2 IRBMs, with a maximum range of 2,400 KM and 2,500 kilogram warheads deployed at Al-Juyfar and As-Sulayyil. It rates them as having a CEP of 1,000 meters, but this seems to be the accuracy of the guidance platform and not the missile. It also states that the SAF has 30 to 120 more modern DF-3 missiles, and is acquiring or has some DF-25 solid fuel MRBMs. None have precision guidance capability and would be limited to fire against largely area targets with uncertain lethality and effectiveness.
- ***Figure M3: Iran's Growing Missile Launches*** illustrates the scale of Iran's efforts to develop long-range missile strike capabilities. Iran has drawn on Russian, Chinese, North Korean, and other sources to go from a FROG/Scud level of development to create "space" or satellite missiles like the Simorgh (Safir-1) with boosters capable of ICBM ranges.

- ***Figure M4: Key Iranian Ballistic and Cruise Missile Types*** provides an overview of Iran's current major long-range missiles, of their physical shape, and of their range superimposed on an image of the region. The Seijil-2 is a solid fuel systems with a range has high as 2,000 kilometers. The Soumar cruise missile is claimed to have ranges of some 2,500-3,000 kilometers.
- Upgrades to the Fatheh 110-D1 are particularly interesting because it may be the first Iranian system with something approaching a precision strike capability. Converting to a mix of precision-strike ballistic and cruise missiles would be a critical advance for Iran. At present, Iran can only strike large area targets like major basses, infrastructure and petroleum facilities, and population centers with missiles that would hit nearly at random and with no more lethality than that of a single dumb bomb. The net result of even volley attacks would be similar to that of the ineffective the missile strikes during the Iran-Iraq War and 1990-1991 Gulf War and be more that of a terror weapon than an effective method of war fighting.
- A major Iranian precision strike capability would Iran is to use missiles with conventional warheads to destroy key high value point targets. It would offset much of the South Gulf advantage in air power and/or force the Southern Gulf states to produce major theater missile defenses and seek large-scale U.S. deployments of naval missile defense forces.
- ***Figure M5. Iran Strategic Missile Inventory*** provides a guesstimate as to Iran's holding of major land-based ballistic and cruise missiles and artillery rocket systems. There is no convincing open source estimate of Iran's missile production capabilities and inventory, or the real-world result of its missile tests. It is clear, however, that its forces have major mobile elements and some sheltering capability.
- ***Figure M6. Iran's Missile Ranges*** provides a broader list of Iranian missiles with nominal range data. It should be noted that no unclassified source of such data is realistic, since all sources use a nominal rather than a real payload and assume effective guidance can be provided to the maximum use of the booster.
- ***Figure M7: Israeli Missile Inventories*** provides a standard of comparison with the most technologically advanced power in the region.

M1. Southern Arab Gulf State Tactical Missile Inventories

	Saudi Arabia	UAE	Qatar	Oman	Bahrain	Kuwait
Air-Launched Missiles	**AAM**: **IR** AIM-9P/L *Sidewinder*; **IIR** AIM-9X *Sidewinder* II; IRIS-T; **SARH** AIM-7 *Sparrow*; AIM-7M *Sparrow*; **ARH** AIM-120C AMRAAM **ASM** AGM-65 *Maverick*; AR-1 **AShM** *Sea Eagle* **ARM** ALARM **ALCM** *Storm Shadow*	**AAM**: **IR** AIM-9L *Sidewinder*; R-550 *Magic*; **IIR** AIM-9X *Sidewinder* II; **IIR/ARH** *Mica*; **ARH** AIM-120B/C AMRAAM **ASM** AGM-65G *Maverick*; *Hakeem* 1/2/3 (A/B) **ARM** AGM-88C HARM **ALCM** *Black Shaheen* (*Storm Shadow*/ SCALP EG variant)	**AAM • IR** R-550 *Magic* 2; **ARH** *Mica* RF **ASM** *Apache*; HOT **AShM** AM39 *Exocet*	**IR** AIM-9/M/P *Sidewinder*; **IIR** AIM-9X *Sidewinder* II; **ARH** AIM-120C7 AMRAAM **ASM** AGM-65D/G *Maverick* **AShM** AGM-84D *Harpoon*	**AAM • IR** AIM-9P *Sidewinder*; **SARH** AIM-7 *Sparrow*; **ARH** AIM-120B/C AMRAAM **ASM** AGM-65D/G *Maverick*; some TOW	**AAM • IR** AIM-9L Sidewinder; R-550 Magic; **SARH** AIM-7F Sparrow; **ARH** AIM-120C7 AMRAAM **ASM** AGM-65G Maverick; AGM-114K Hellfire **AShM** AGM-84A Harpoon
Surface-to-Surface Missiles		**SRBM**: 6 Scud-B (up to 20 msl); MGM-140A/B ATACMS (launched from M142 HIMAzRS)			**SRBM • Conventional** MGM-140A ATACMS (launched from M270 MLRS)	
Bombs	**Laser-guided** GBU-10/12 *Paveway* II; *Paveway* IV **INS/GPS-guided** GBU-31 JDAM; FT-9	**INS/SAT guided** *Al Tariq* **Laser-guided** GBU-12/58 *Paveway* II		**Laser-guided** EGBU-10 *Paveway* II; EGBU-12 *Paveway* II **INS/GPS guided** GBU-31 JDAM	**Laser-guided** GBU-10/12 *Paveway* II	

Source: Adapted from the *IISS, Military Balance, 2018*.

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M2: Saudi and UAE Missile Inventories

Saudi Arabia

Strategic Missile Forces

- MSL ● Tactical
  - **IRBM** 10+ DF-3 (CH-SS-2) (service status unclear)
  - **MRBM** Some DF-21 (CH-SS-5) (reported)

Air-Launched Missiles

- **AAM**: **IR** AIM-9P/L *Sidewinder*; **IIR** AIM-9X *Sidewinder* II; IRIS-T; **SARH** AIM-7 *Sparrow*; AIM-7M *Sparrow*; **ARH** AIM-120C AMRAAM
- **ASM** AGM-65 *Maverick*; AR-1
- **AShM** *Sea Eagle*
- **ARM** ALARM
- **ALCM** *Storm Shadow*

Bombs

- **Laser-guided** GBU-10/12 *Paveway* II; *Paveway* IV
- **INS/GPS-guided** GBU-31 JDAM; FT-9

UAE

Surface-to-Surface Missile Launchers

- **SRBM**: 6 Scud-B (up to 20 msl); MGM-140A/B ATACMS (launched from M142 HIMARS)

Air-Launched Missiles

- **AAM**: **IR** AIM-9L *Sidewinder*; R-550 *Magic*; **IIR** AIM-9X *Sidewinder* II; **IIR/ARH** *Mica*; **ARH** AIM-120B/C AMRAAM
- **ASM** AGM-65G *Maverick*; *Hakeem* 1/2/3 (A/B)
- **ARM** AGM-88C HARM
- **ALCM** *Black Shaheen* (*Storm Shadow*/ SCALP EG variant)

Bombs

- **INS/SAT guided** *Al Tariq*
- **Laser-guided** GBU-12/58 *Paveway* II

Source: Adapted from the IISS, Military Balance, 2018.

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M3: Iran's Growing Missile Launches - I

M3: Iran's Growing Missile Launches - II

Iran has continued developing and testing missiles and space boosters, despite agreeing not to develop or test ballistic missiles "designed to be capable of" delivering a nuclear weapon, until 2023 (Resolution 2231- JCPOA).

Any missile capable of carrying a large conventional payload I or intelligence collection system can be easily modified carry a nuclear warhead, and nuclear warheads compensate in part for a lack of precision strike capability.

- October 11, 2015 and November 21, 2015: Iran tested a 1,200-mile-range ballistic missile. (The test occurred prior to the taking effect of the Resolution.
- March 8-9, 2016: Iran reportedly conducted missile tests, the first such tests after Implementation Day
- May 2016: Iran conducted a missile test, though varying accounts of the range of the missile were reported.
- July 11-21, 2016: Iran tested a missile of a range of 2,500 miles, though it failed.
- January 29, 2017: Iran tested what Trump Administration officials called a version of the *Shabab* missile , although reports indicate the missile exploded after traveling roughly 600 miles.
- July 27, 2017: Iran's *Simorgh* rocket launched a satellite into space
- On several occasions since the JCPOA was finalized, Iran has tested short-range ballistic missiles.

Source: Adapted from Katzman, Kenneth. "Iran's Foreign and Defense Policies". Congressional Research Service. March 20, 2018. pg. 13

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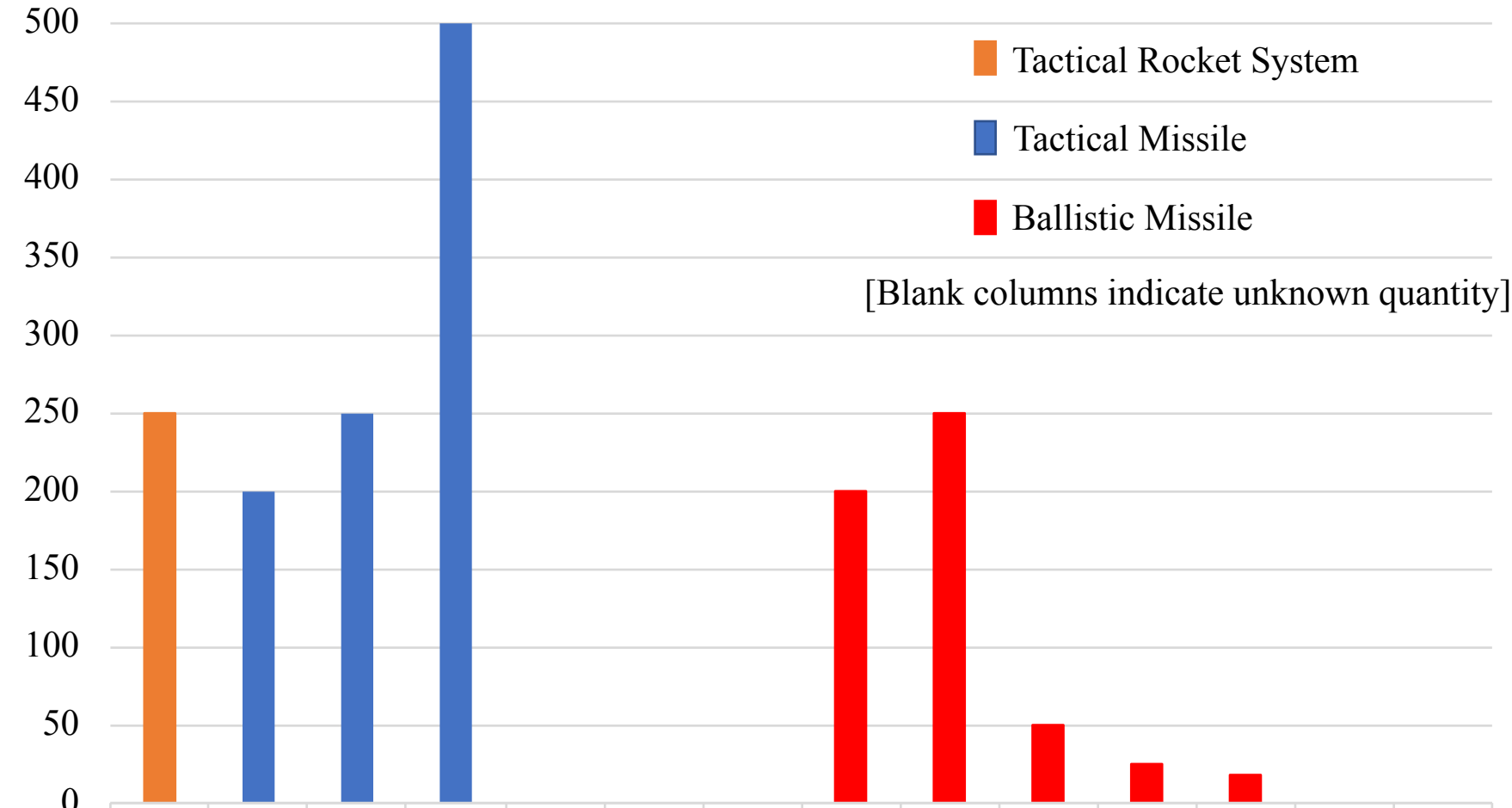
M4: Key Iranian Ballistic and Cruise Missile Types, Profiles, and Range Maps

M5. Iran Strategic Missile Inventory



	Frog 7	Oghab	Shahin-2	Nazeat 130	Fateh 110	Fateh A-110	Fateh-110-D1	Tondar 69	Shahab-1	Shahab-2	Shahab-3	BM-25	Qiam 1	Emad
Quantity	250	200	250	500				200	250	50	25	18		

Source: *Jane's Sentinel Security Assessment – Strategic Weapon Systems. February 2017. IHS.*

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M6: Iran's Missile Ranges

Missile	Class	Range	News
Safir	SLV	350 km altitude	Operational
Khorramshahr	MRBM	2,000 km	In Development
Qiam-1	SRBM	700-800 km	Operational
Shahab-1	SRBM	285-330 km	Operational
Simorgh	SLV	500 km altitude	In Development
Koksan M1978	Artillery	40-60 km	Operational
Zolfaghar	SRBM	700 km	Operational
Emad (Shahab-3 Variant)	MRBM	1,700 km	In Development
Sejjil	MRBM	2,000 km	Operational
Shahab-2 (Scud C-Variant)	SRBM	500 km	Operational
Shahab-3	MRBM	1,300 km	Operational
Ghadr 1 (Shahab-3 Variant)	MRBM	1,950 km	In Development
Fateh-110	SRBM	200-300 km	Operational
Tondar 69	SRBM	150 km	Operational
Soumar	Cruise Missile	2,000-3,000 km	Operational
Ra'ad	Cruise Missile	150 km	Operational

Source: Missile Defense Project, "Missiles of Iran," Missile Threat, Center for Strategic and International Studies

M7: Israeli Missile Inventories

Surface-to-Surface Missile Launchers

IRBM ● Nuclear: ε24 *Jericho* 2

SRBM ● **Dual-capable** (7 *Lance* in store)

Air- Launched Missiles

AAM ● **IR** AIM-9 *Sidewinder*; *Python* 4; **IIR** *Python* 5;

ARH AIM-120C AMRAAM

ASM AGM-114 *Hellfire*; AGM-62B *Walleye*; AGM-65 *Maverick; Delilah* AL; *Popeye* I/*Popeye* II; *Spike* NLOS

BOMBS

IIR guided *Opher*

Laser-guided *Griffin*; *Lizard*; *Paveway* II

INS/GPS guided GBU-31 JDAM; GBU-39 Small Diameter Bomb (*Barad Had*); *Spice*

Source: Adopted from the IISS, Military Balance, 2018.